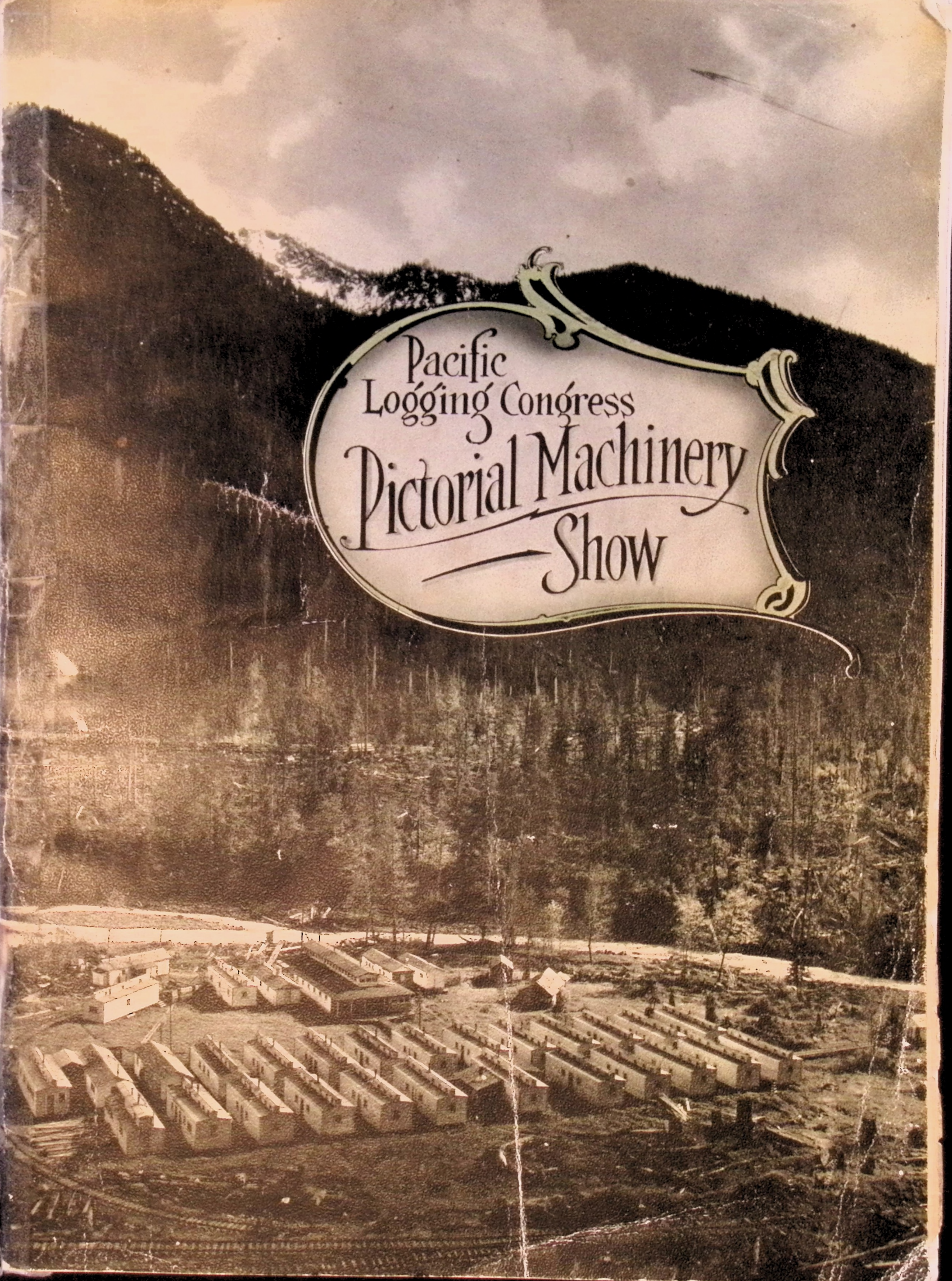
Pacific Logging Congress
Pictorial Machinery Show



THE COVER PAGE

THE remarkable logging camp scene forming the front cover of the PACIFIC LOGGING CONGRESS PICTORIAL MACHINERY SHOW was taken at the headquarters camp of the St. Paul & Tacoma Lumber Co., in the Nooksack Valley, near Deming, Wash. The camp is 165 miles from Tacoma, where the three sawmills of the company are located. Two and a half sides are operated at the Nooksack Valley camp, in conjunction with twenty miles of logging railroad. A. P. Le Doux is in charge of logging operations for the St. Paul & Tacoma Lumber Co. Jack Sutherland is superintendent of the Nooksack camp.

* * *

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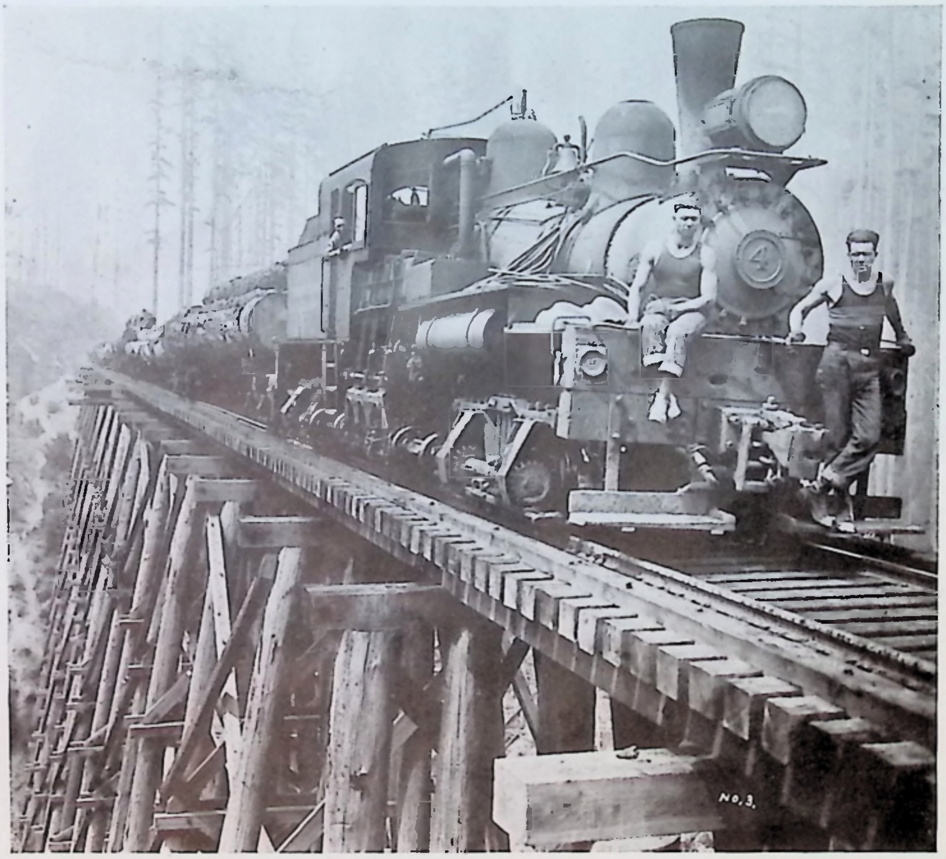
The TIMBERMAN
An International Lumber Journal
GEO. M. CORNWALL, Editor
Portland, Oregon San Francisco, California

PACIFIC LOGGING CONGRESS
PICTORIAL MACHINERY SHOW

AN ILLUSTRATED REVIEW of mechanical progress in timber handling methods, dedicated to the loggers and lumbermen of the Pacific Greater West, in observance of the twentieth anniversary of the Pacific Logging Congress, at Seattle, Washington, October 23-26, 1929. In pictorial form, leading machinery builders of the United States present their newest types of equipment, designed for harvesting the timber crop of the Pacific Greater West.



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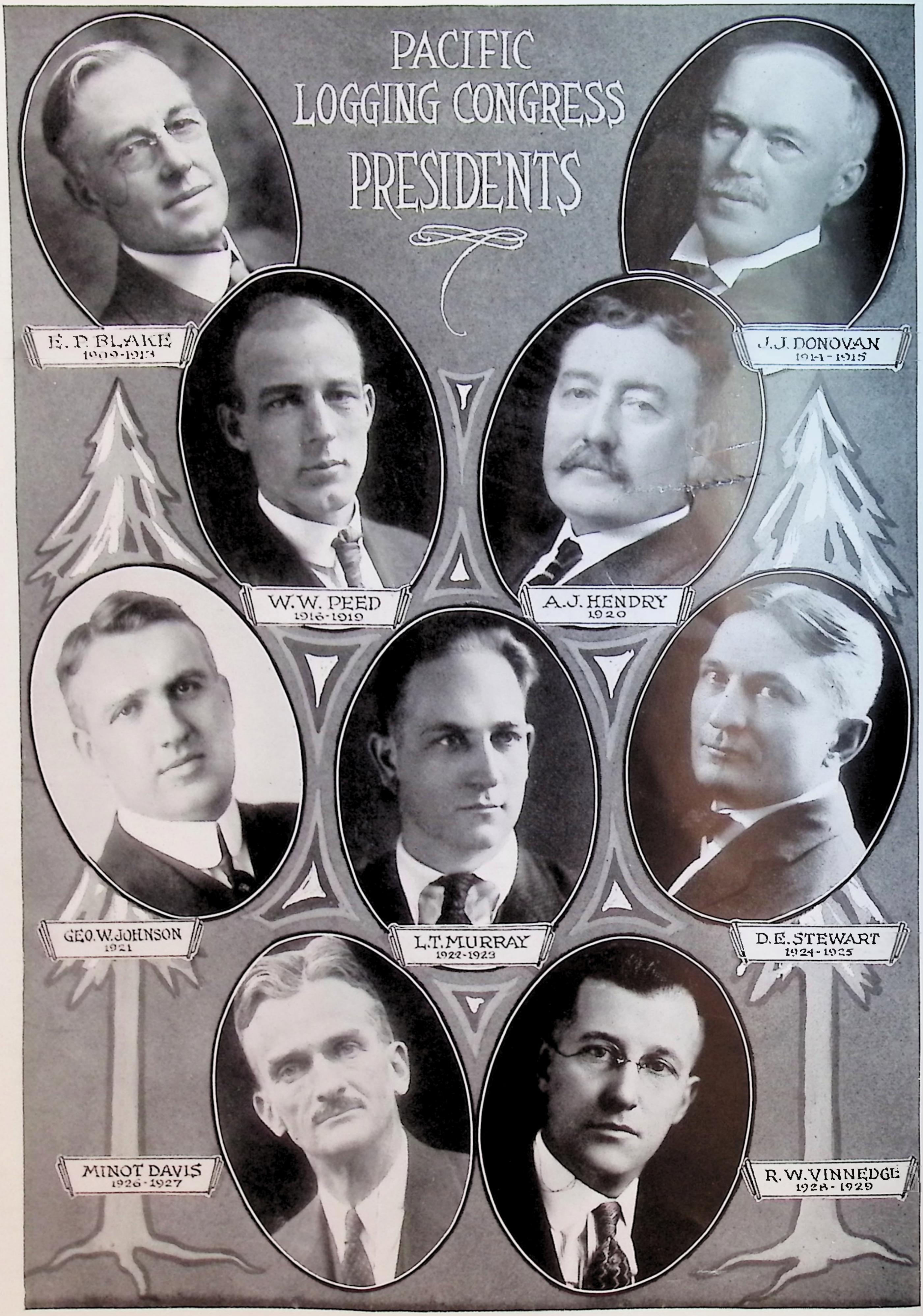

PACIFIC
LOGGING CONGRESS
PRESIDENTS
E. P. BLAKE
1909-1913
J. J. DONOVAN
1914-1915
W. W. PEED
1916-1919
A. J. HENDRY
1920
GEO. W. JOHNSON
1921
L. T. MURRAY
1922-1923
D. E. STEWART
1924-1925
MINOT DAVIS
1926-1927
R. W. VINNEDGE
1928-1929

TURNING BACK THE PAGES

1909 Brief History of Founding and Achievements of PACIFIC LOGGING CONGRESS 1929

Birthplace of Pacific Logging Congress, House of Hoo-Hoo, Alaska-Yukon-Pacific Exposition, Seattle, 1909

TWENTY years ago last July, a voluntary committee composed of E. G. English, J. J. Donovan, E. P. Blake, Geo. M. Cornwall and others, marshalled together a group of one hundred and twenty-three logging operators, timber officials and machinery men to discuss technical problems confronting the logging industry. The meeting was called for July 19-21 at the House of Hoo-Hoo on the fair grounds of the Alaska-Yukon-Pacific Exposition, at Seattle, under the tentative name of the Pacific Coast Logging Congress, later shortened to its present title.

The rapid growth of the logging industry following the introduction of steam equipment at the beginning of the new century, and problems incidental to such development, formed the inspiration of the first Congress. On the other hand need was beginning to be felt for more technical skill in the logging industry and necessity was arising for training young men in the profession of logging engineering, just beginning to be recognized as a distinct branch of mechanical science.

The results of the first meeting exceeded the fondest hopes of the sponsors. The delegates speedily declared themselves in favor of a permanent body to be called the Pacific Logging Congress, which would meet each year for the exchange of information, ideas and good fellowship. On this solid foundation the Pacific Logging Congress has continued to grow and increase in interest with each succeeding year, and it is therefore most appropriate that the twentieth anniversary of its founding should be observed in the city of its birth.

The Pacific Logging Congress in a large measure is responsible for many improvements in logging machinery. From first-hand contact with the logger, the machinery designer learned the problems of timber removal at high elevations and on rough ground. This influence has found expression in great diesel power units, one hundred-foot steel tower skidders, track-laying tractors of rugged design, improved arch wheels, improved railroad equipment and many other items. All these developments form a striking contrast to the days of the bull team, diminutive steam donkey, and eight-ton locomotives of the era preceding the birth of the Congress.

The Timberman feels a pardonable pride in the growth of the Pacific Logging Congress. The task of preparing the sentiment for the first meeting was entrusted to its editor, Mr. Geo. M. Cornwall, who also assembled the first program. Upon his election as secretary-treasurer at the first meeting in 1909, he served in this capacity for fifteen years. During this time he was largely responsible for the programs and each year he traveled thousands of miles throughout the territory to enlist the support and interest of the logging industry.

Fostering of mechanical progress in logging does not include the full scope of the Congress for its efforts have been equally broad in other directions. This body is responsible in a great measure for improved living conditions in the camps and through its educational work it has done much to reduce the accident toll in the hazardous tasks of the woods.

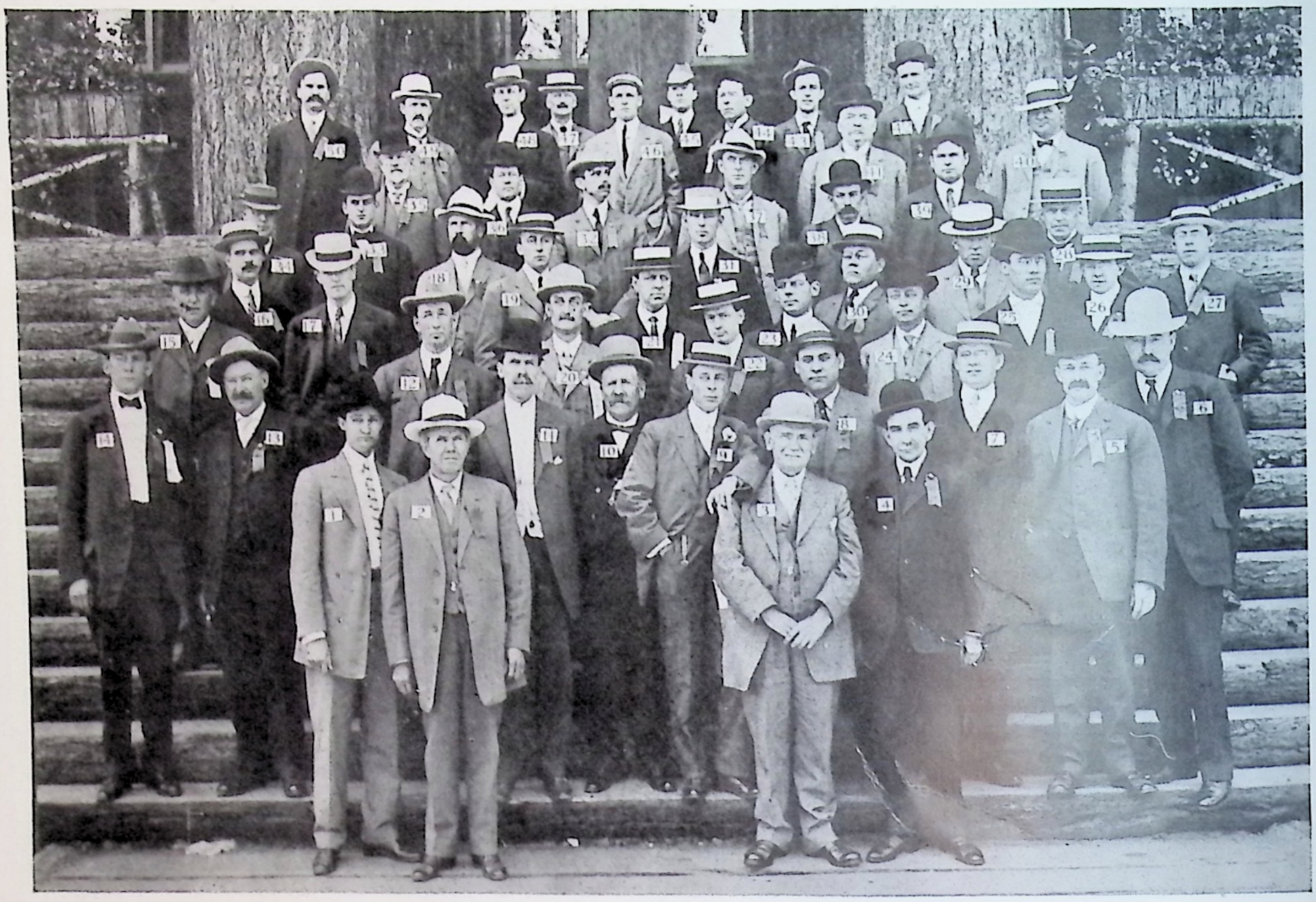
At the first session of the Pacific Logging Congress the idea of devoting a full day to inspecting a nearby logging operation was inaugurated and carried out through most of the succeeding sessions, with two or three exceptions when the Logging Congress Machinery Show was presented to demonstrate the progress in mechanical methods. The first excursion was made to the camp of the Merrill & Ring Logging Co., then operating in the vicinity of Mukilteo, Wash. The party comprised fifty-three delegates.

Human relations have likewise been stressed in the deliberations of the organization. For many years the annual Welfare Dinner sponsored by the industrial division of the Y. M. C. A. was a feature of the annual sessions. These dinners always were well attended and were regarded as both educational and inspirational.

Traveling in a large circuit, the Congress has held sessions at various times at Seattle, Portland, Tacoma, Spokane, Bellingham, Vancouver, San Francisco, with field trips to Grays Harbor, Eureka and Bend.

E. P. Blake, of the Washington Log Brokerage Co., Seattle, was the first president of the Pacific Logging Congress. The skill with which he presided at the first informal session and his intimate knowledge of logging topics made him the unanimous choice as president of the permanent organization. Mr. Blake, who has since retired and is living at Sequim, Wash., presided over five sessions of the Congress. In 1914 Mr. J. J. Donovan, still one of the most ardent supporters of the Congress, succeeded him. Other presidents have followed in the order shown in the full page plate on page 2. From Mr. Blake down to Mr. Vinnedge, who completes his second term at this session, the executive heads of the organization have been men of the

Delegates to the First Pacific Logging Congress at A.-Y.-P. Exposition, Seattle, July, 1909



1 Don Carlos Ellis
2 John A. Fastabend
3 E. G. English
4 Geo. M. Cornwall
5 E. P. Blake
6 Arthur J. Hendry
7 C. E. Patten
8 Jesse Ives
9 D. E. Skinner
10 O. M. Clark
11 (Not identified.)
12 Peter Connacher
13 Nils Anderson
14 B. W. Sawyer
15 Albert Brix
16 Wm. Whitfield
17 J. S. O'Gorman
18 Dr. W. C. Belt
19 E. L. Mersereau
20 H. C. Clair
21 W. H. Corbett
22 G. K. Wentworth
23 W. W. Everett
24 Clark W. Thompson
25 (Not identified.)
26 J. S. Fox
27 Francis Frink
28 J. J. Donovan
29 James A. Izett
30 E. E. Brehm
31 W. W. Peed
32 Frank H. Lamb
33 (Not identified.)
34 M. H. Dickinson
35 Mr. Simonds
36 F. M. Ireland
37 E. S. Collins
38 Geo. H. Newell
39 F. E. Newby
40 (Not identified.)
41 H. B. Muir
42 E. O. Potter
43 (Not identified.)
44 J. D. Young
45 (Not identified.)
46 A. B. Clark
47 A. W. Clark
48 Geo. S. Long
49 W. I. Ewart
50 W. T. Andrews

highest type, all of whom have contributed their full share toward the success of the organization.

No mention of the history and growth of the Pacific Logging Congress would be complete without kindly reference to Mr. E. G. English, president of the English Lumber Co., Seattle. "Uncle Ed" English has never missed a session of the Pacific Logging Congress since its inception twenty years ago. Five years ago at Longview, Wash., he appeared on crutches, but he refused to be kept away from the Congress which he helped create and from the associations so dear to his heart. Mr. English and Mr. Cornwall are the only two honorary life members of the Pacific Logging Congress.

The first technical paper presented at the Pacific Logging Congress was written by Mr. George I. Brown, of Portland, a member of the American Society of Electrical Engineers, entitled "Electricity as a Factor in Logging."

Three secretaries have served the Pacific Logging Congress since its founding: Geo. M. Cornwall, John T. Dougall and A. Whisnant. Headquarters are maintained at 521 Spalding Building, Portland, Ore.

1855 . . . Pioneer Logging Scenes on the Pacific Coast . . . 1900

1—A curious home-made logging locomotive used by the Johnson mill at Coquille, Ore., before the dawn of the present century.

2—One of the early camps of the Eastern & Western Lumber Co. at Eufaula, Wash.

3—This may be a prize-winning entry in the "world's highest stump contest." Butt logs were in small favor 25 years ago in the redwoods.

4—Bryant & Reed's logging operation, Arlington, Wash., in 1892.

5—A "Walking Dudley" used by the O. K. Logging Co., on the Columbia River. Logs were dragged over ties in long turns.

6—An early day Baldwin saddle tank locomotive with spark arrester of heroic proportions.

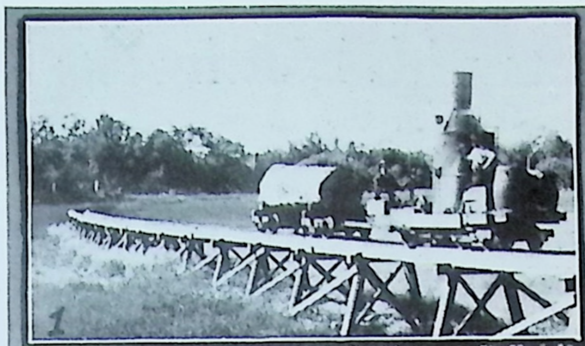
7—A home-made single cylinder 6x8 donkey engine once in use near Detroit, Ore.

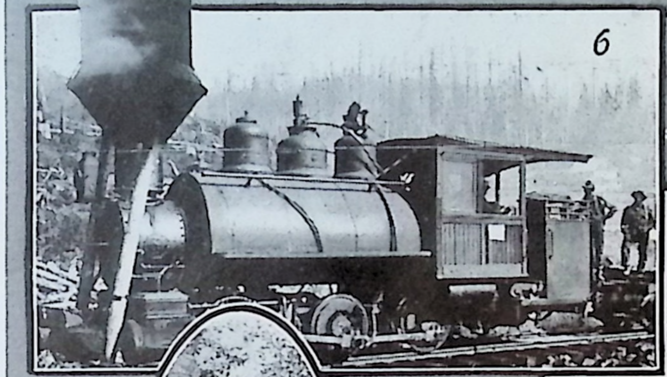
8—A rare old scene in the redwoods, showing a capstan head "Dolbeer" and manila rope lines.

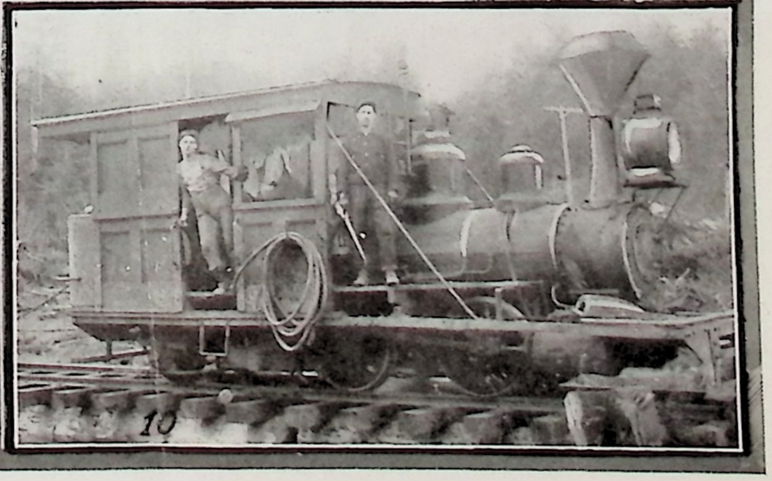
9—The oldest Pacific Coast logging picture in existence, bull team logging on the Albion River in California in 1855.

10—"The last word" in logging locomotives on the Columbia River in 1900.

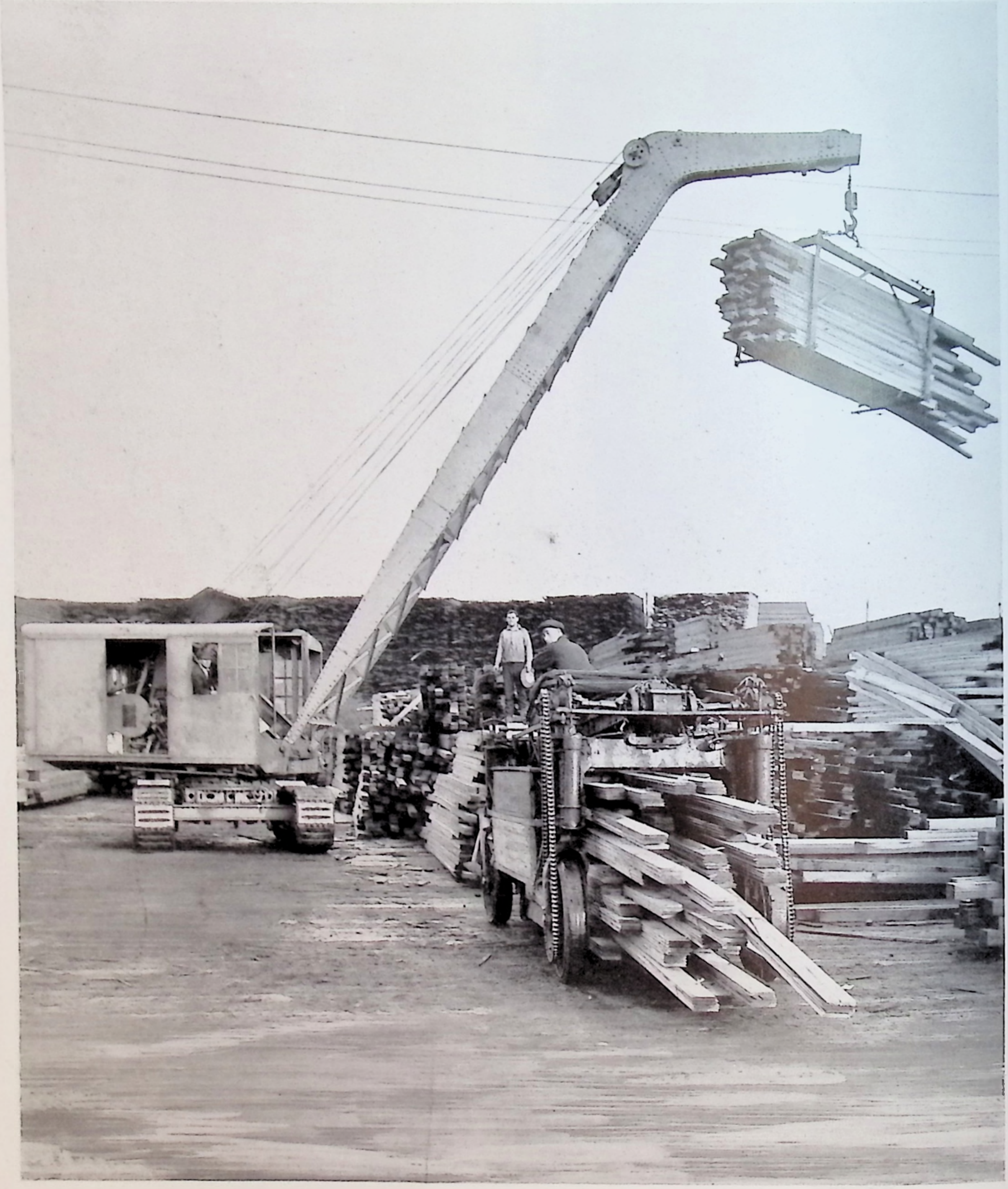
Pioneer Logging Scenes on the Pacific Coast







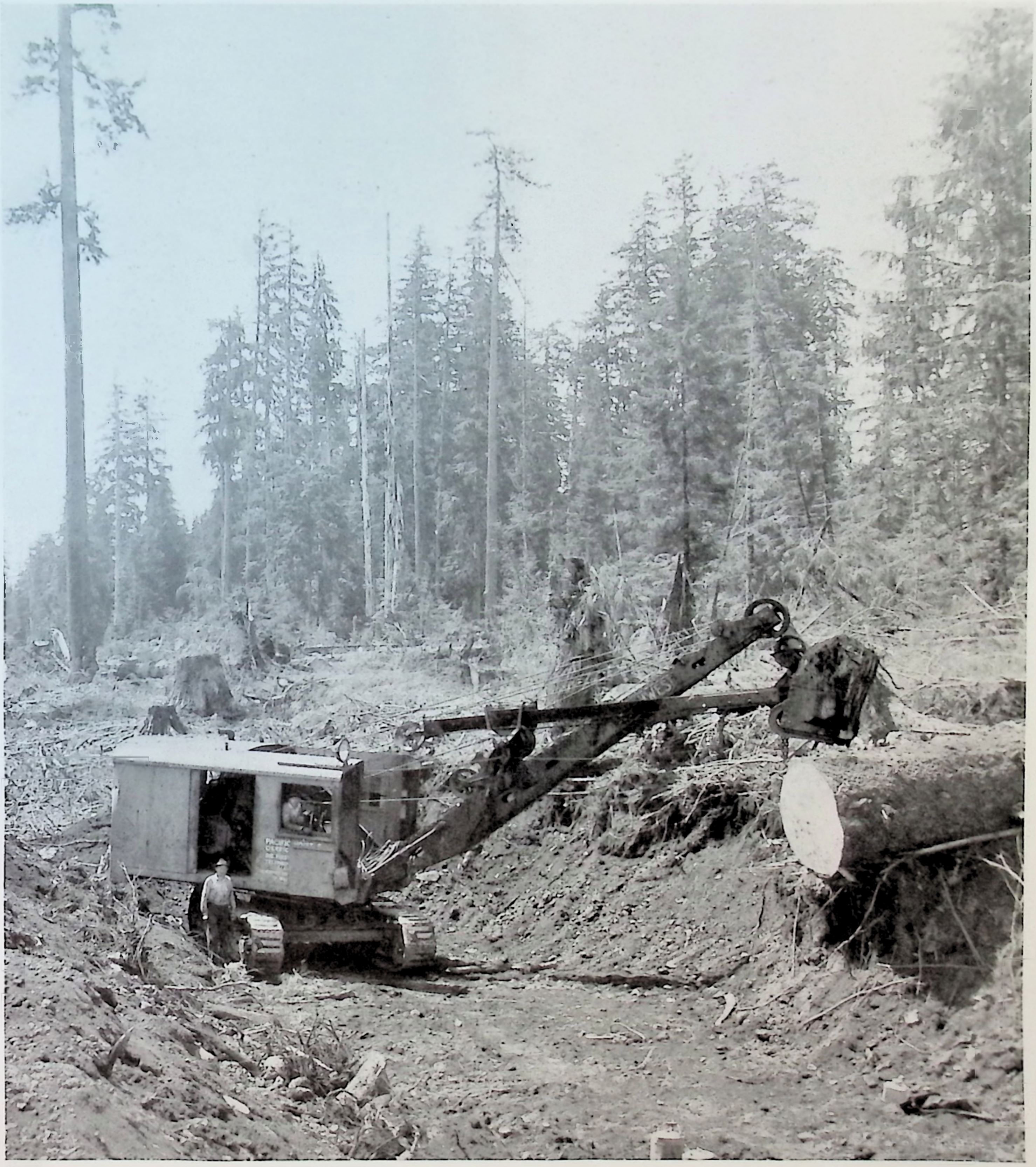
Reducing Storage Space and Costs with Northwests



The problem of handling and rehandling lumber in packages was nicely solved by this Northwest for the Inman-Poulsen Lumber Co., of Portland, Ore. High piling is easily accomplished and the fire risk is eliminated. Quick, easy mobility enables storage to be placed wherever it is desirable, broadening out the scope of the yard as conditions demand

For Agencies and Specifications see Page 46

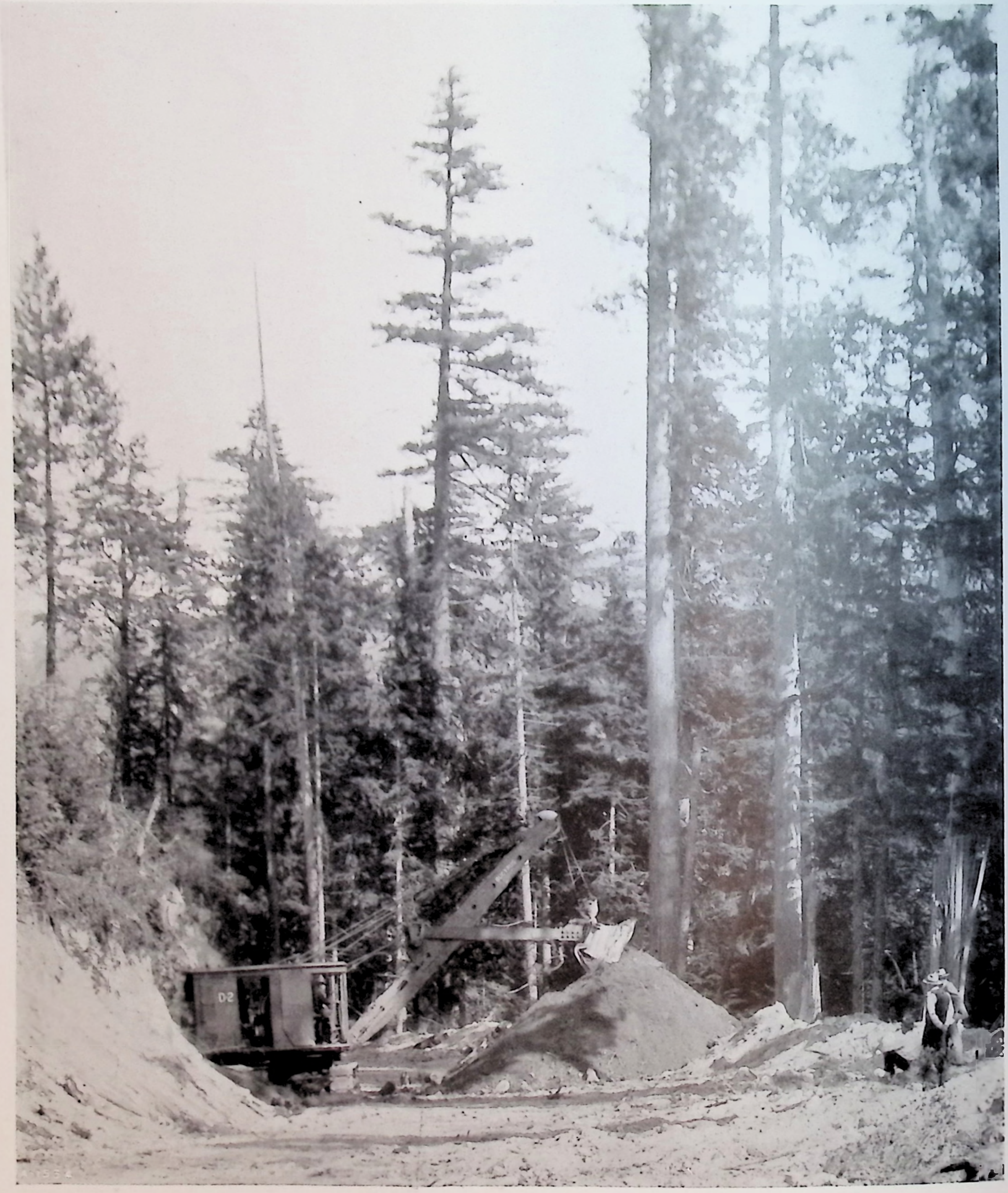
Northwest . . the Loggers' Shovel, Crane and Dragline



A smooth piece of fill for a logging railroad. Bloedel Donovan Lumber Mills, of Bellingham, Wash., is one of the many West Coast logging companies using Northwests. They own four machines, several of which have seen years of service. Logging work in remote locations is extremely difficult and Northwests have been chosen because of their endurance and economy of operation

For Agencies and Specifications see Page 46

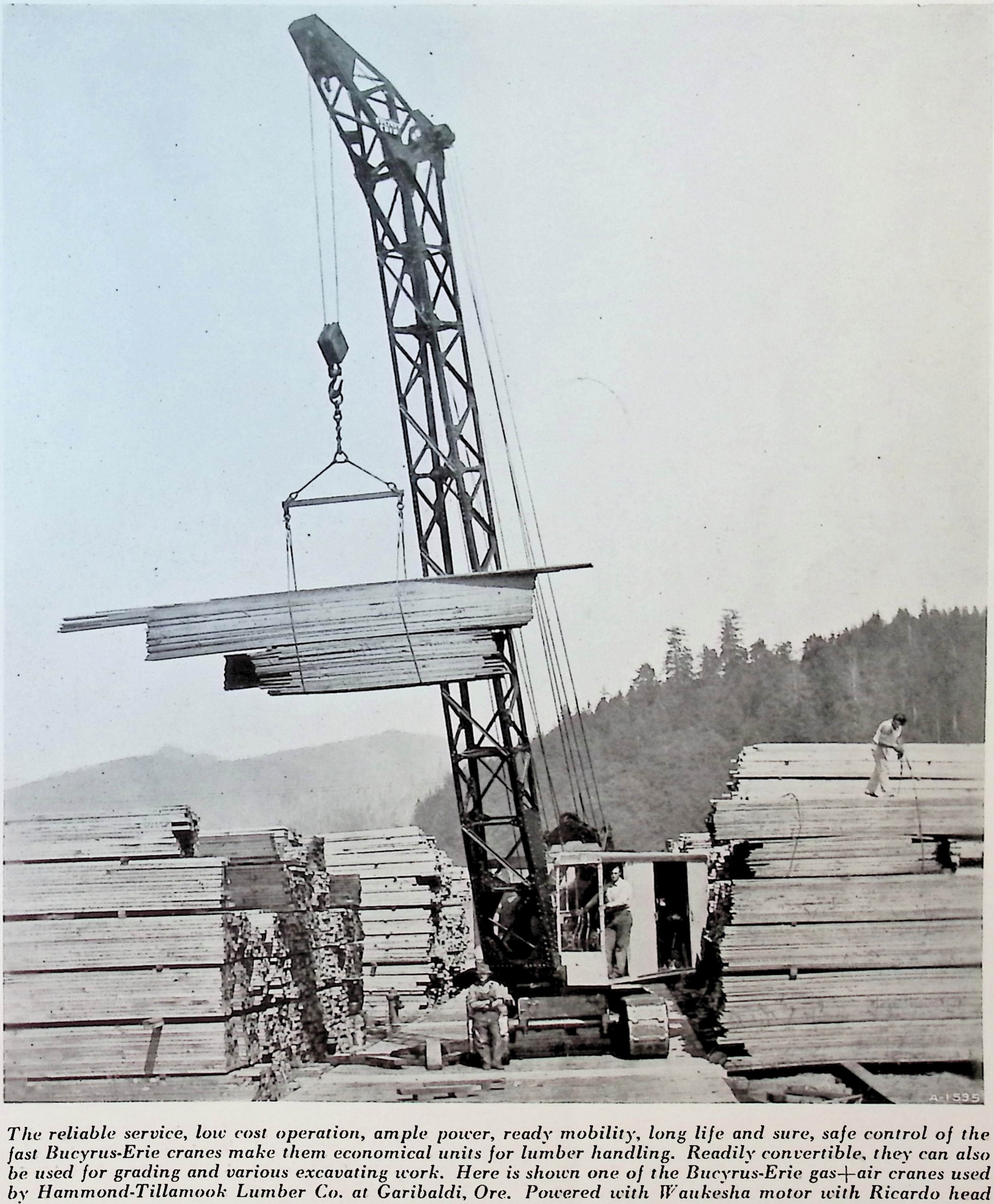
Cut Logging Road Costs with Bucyrus-Erie Diesels



The unequalled reliability of Bucyrus-Erie diesels gives continuous production; their low fuel cost saves operating expense; their rugged sturdiness cuts repair bills; their extra power handles hard digging easily; perfect control reduces hand labor—all these, with sustained high-speed operation, mean maximum production at minimum cost. This one-yard diesel is building logging roads for Wood & Iverson, Washington loggers

For Agencies and Specifications see Page 43

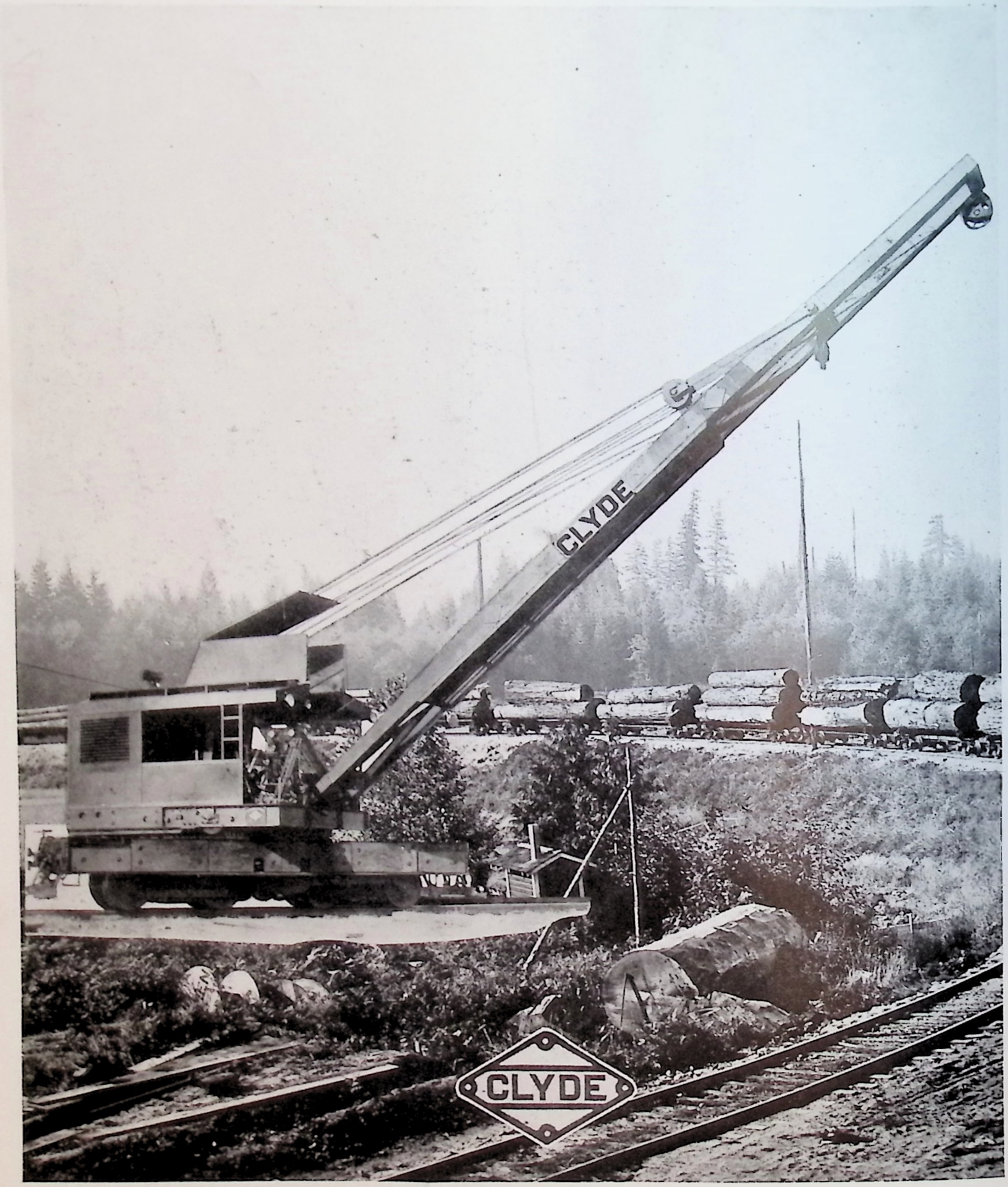
Handle Lumber for Less with Bucyrus-Erie Cranes



The reliable service, low cost operation, ample power, ready mobility, long life and sure, safe control of the fast Bucyrus-Erie cranes make them economical units for lumber handling. Readily convertible, they can also be used for grading and various excavating work. Here is shown one of the Bucyrus-Erie gas+air cranes used by Hammond-Tillamook Lumber Co. at Garibaldi, Ore. Powered with Waukesha motor with Ricardo head

For Agencies and Specifications see Page 43

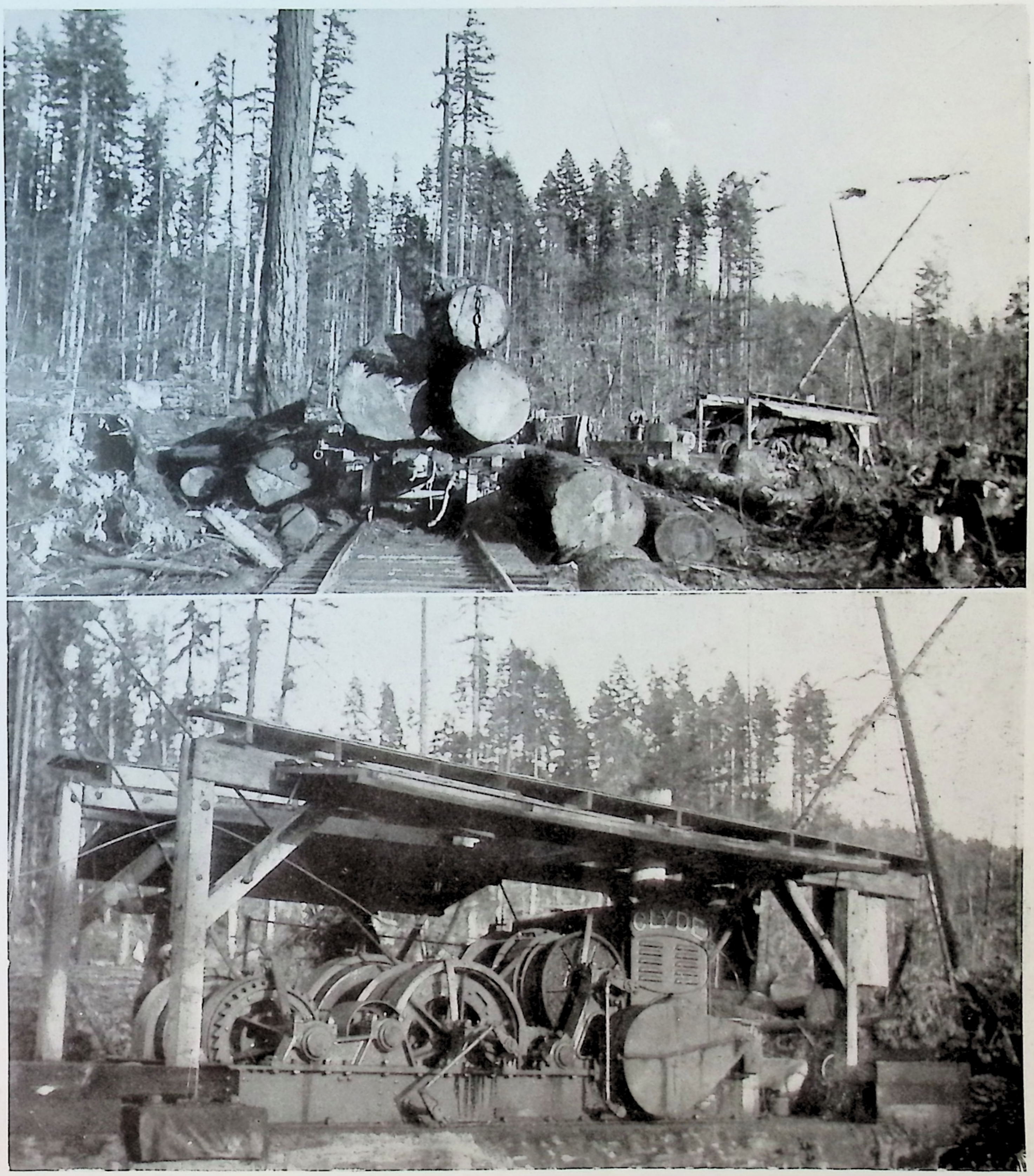
"You'll Take Pride in Your Clyde" Logging Crane



Clyde 200 HP. 30-ton gasoline locomotive crane, designed for logging service, was first shown at the Pacific Logging Congress in Portland in 1928. Meeting with instant appeal, it is successfully used by such logging concerns as Mud Bay Logging Co., Olympia, Wash.; Simpson Logging Co., Shelton, Wash., and Puget Sound Pulp & Timber Co., Everett, Wash. Among its uses are yarding to track, loading logs, wrecking and bridge building

For Agencies and Specifications see Page 44

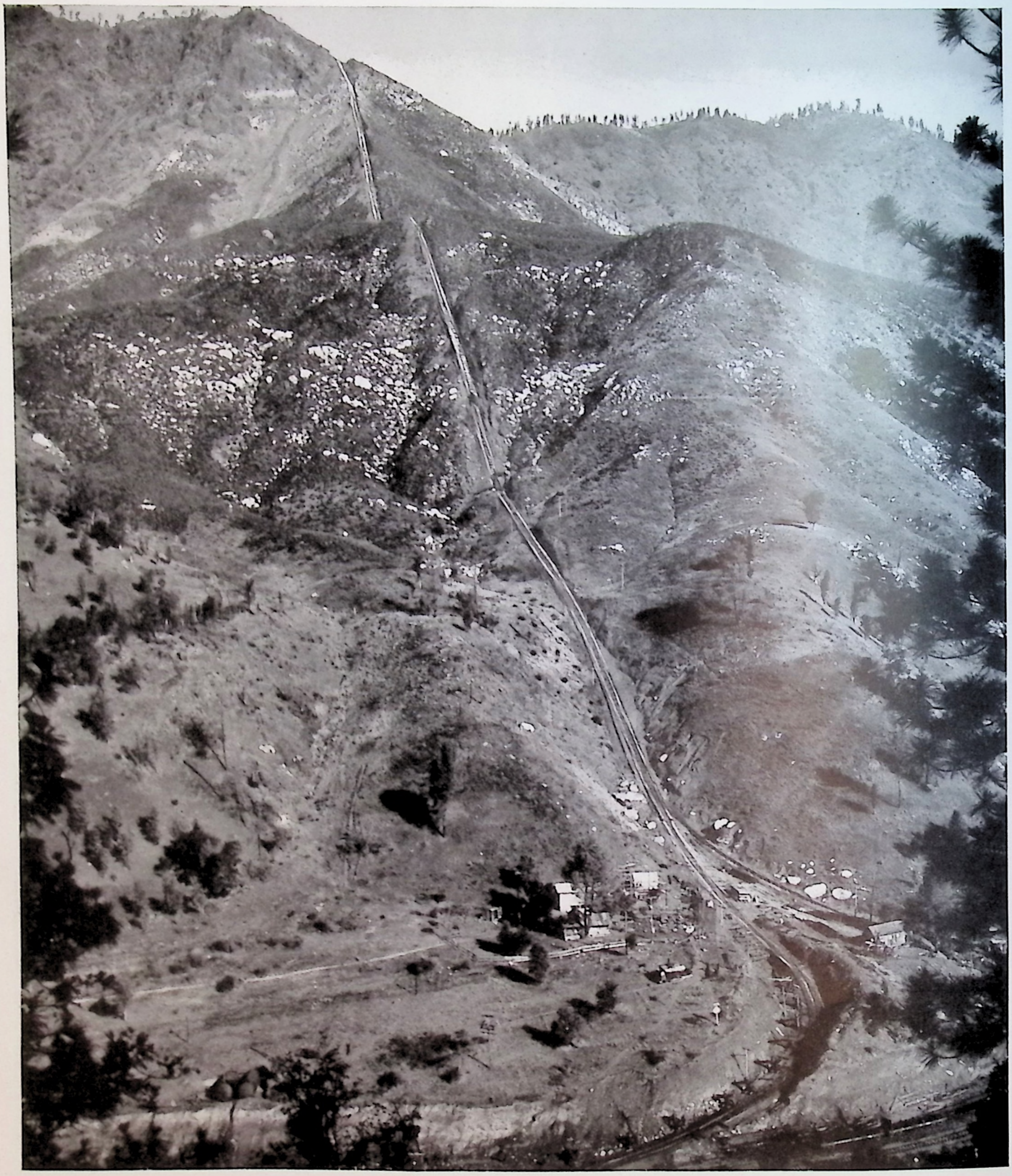
"You'll Take Pride in Your Clyde" Gasoline Yarder



Over a hundred Clyde gasoline yarders in actual service operating in Douglas fir timber today—cutting fuel cost, eliminating fire hazards and water expense and easily yarding the largest timber at a lower cost per M. Flexibility of operation, freedom from breakdowns and extremely low operating costs already known to present users are a revelation to the uninitiated

For Agencies and Specifications see Page 44

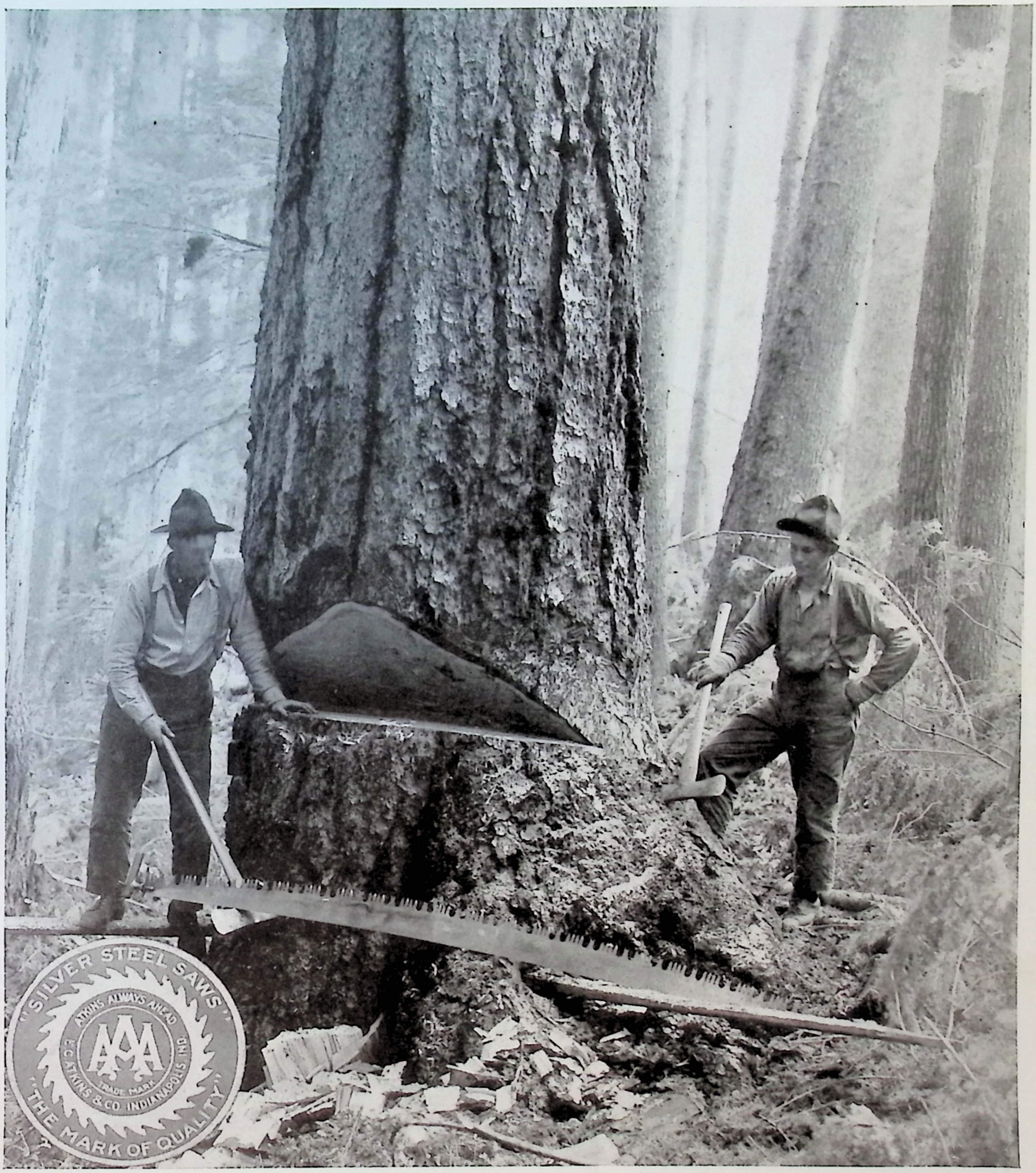
Roebling Wire Rope Will Reduce Logging Costs



The above incline scene is one of many incline operations on which Roebling's have furnished special Blue Center incline ropes with great success. The above picture shows Yosemite Lumber Co.'s 8000-foot incline, maximum grade 68 per cent, maximum elevation 5000 feet, at Incline, Cal., where Roebling 1¾-inch diameter, 6x19 I. W. R. C. Blue Center Steel Incline Rope lowered many millions of feet of logs and broke all previous records

For Agencies and Specifications see Page 47

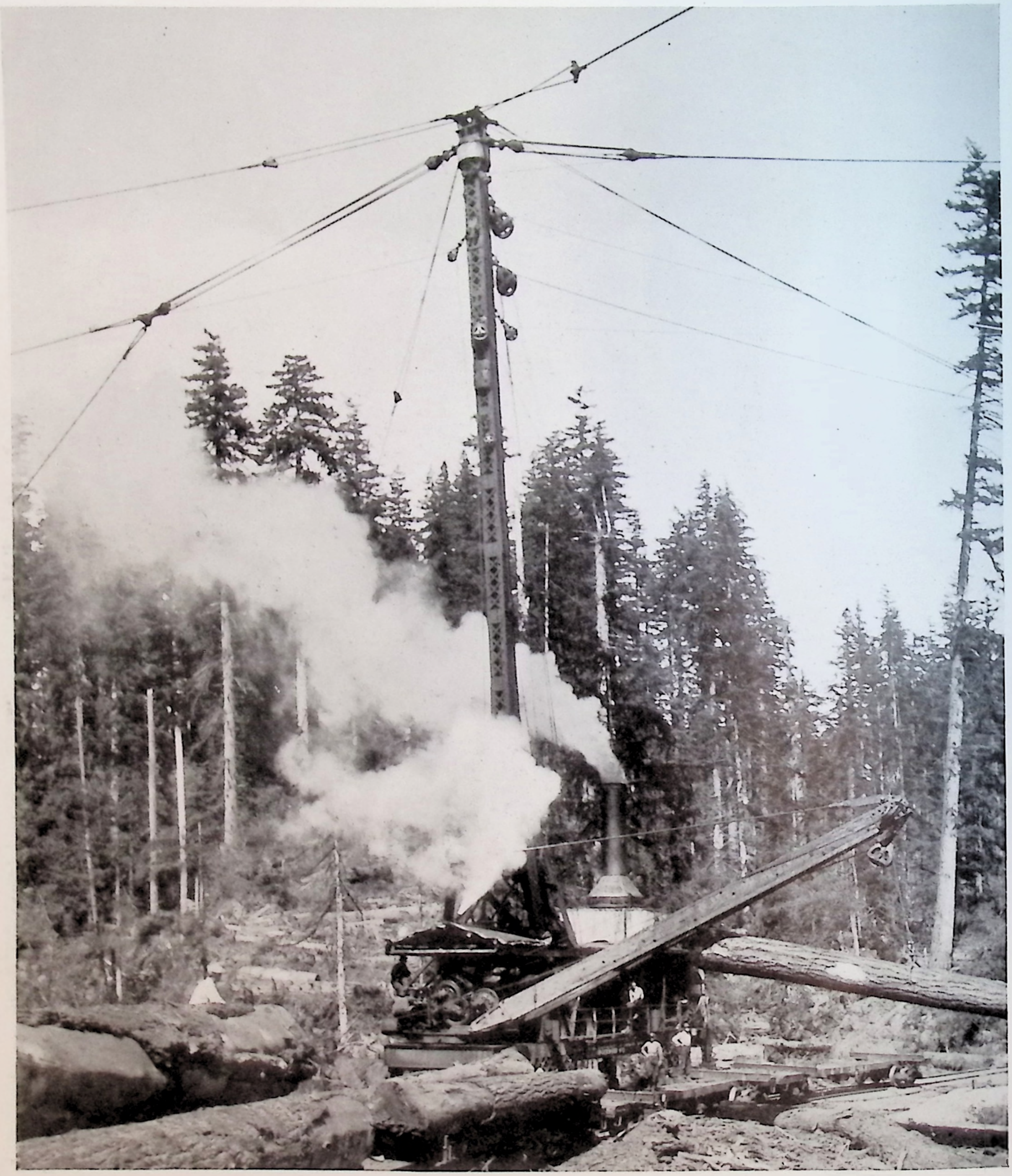
Atkins Crosscut Saws . . . Best Value for the Money



Atkins silver steel, segment ground crosscut saws are admitted by logging operators to be the best value for the money. Manufactured by E. C. Atkins & Co., with main factory and general offices at Indianapolis, Ind., they are for sale at all first-class jobbers and mill supply houses on the Pacific Coast and Inland Empire: 526 Folsom St., San Francisco; 510 First Avenue, Seattle; 73 First St., Portland; 109 Powell St., Vancouver, B. C.

For Agencies and Specifications see Page 43

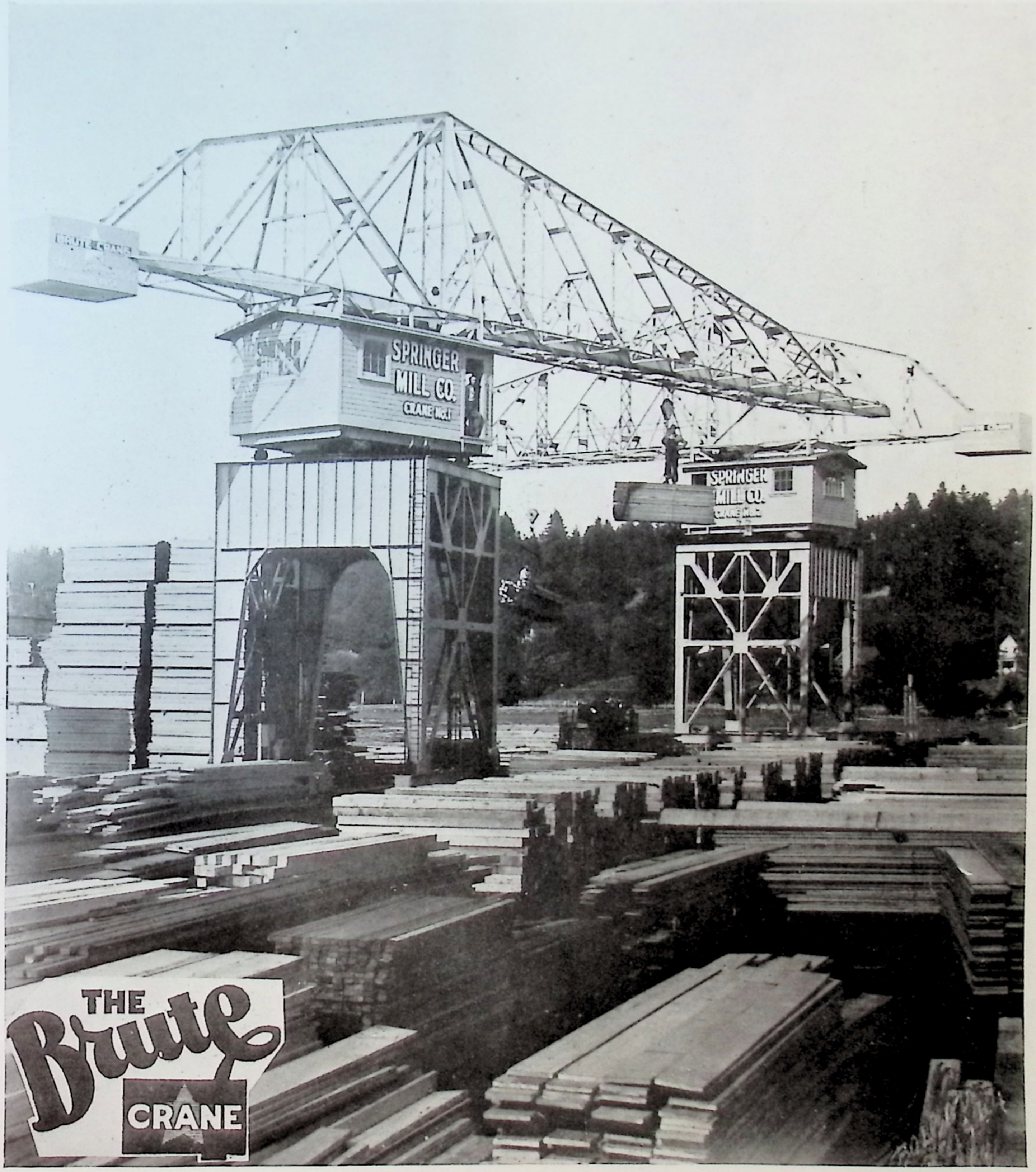
Wickwire Spencer Wire Rope . . Because It's Uniform



Consistent uniformity is the most exacting qualification of a good wire rope. The outstanding success of Wickwire Spencer rope in the logging industry is due in a large part to this factor. The big Lidgerwood steel spar skidder at the Molalla camp of the Eastern & Western Lumber Co., shown above, is equipped with Wickwire Spencer rope. You can depend absolutely upon its uniformity

For Agencies and Specifications see Page 48

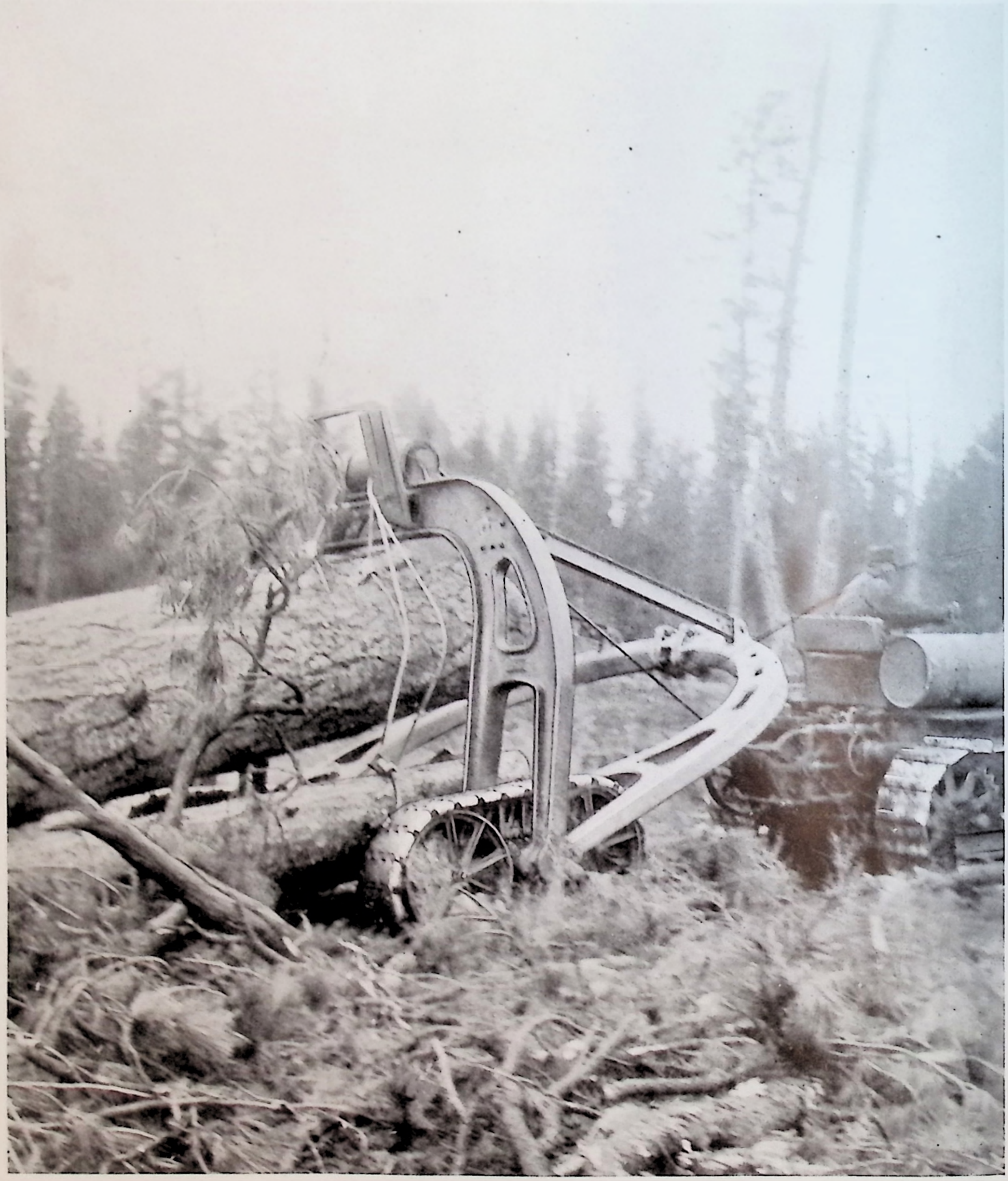
One "Brute" Crane Is Good . . . Two Are Better



Modern business moves at a fast pace. So do modern lumber mills. "Brute" cranes, by meeting this demand for snap and speed in moving lumber in storage yard and on loading dock, have made themselves an essential part of the handling system at many western sawmills. In fact, some owners argue that the only thing that can beat a "Brute" is—two "Brutes." All-electric, hammerhead cranes built by Star Iron & Steel Co., Tacoma

For Agencies and Specifications see Page 47

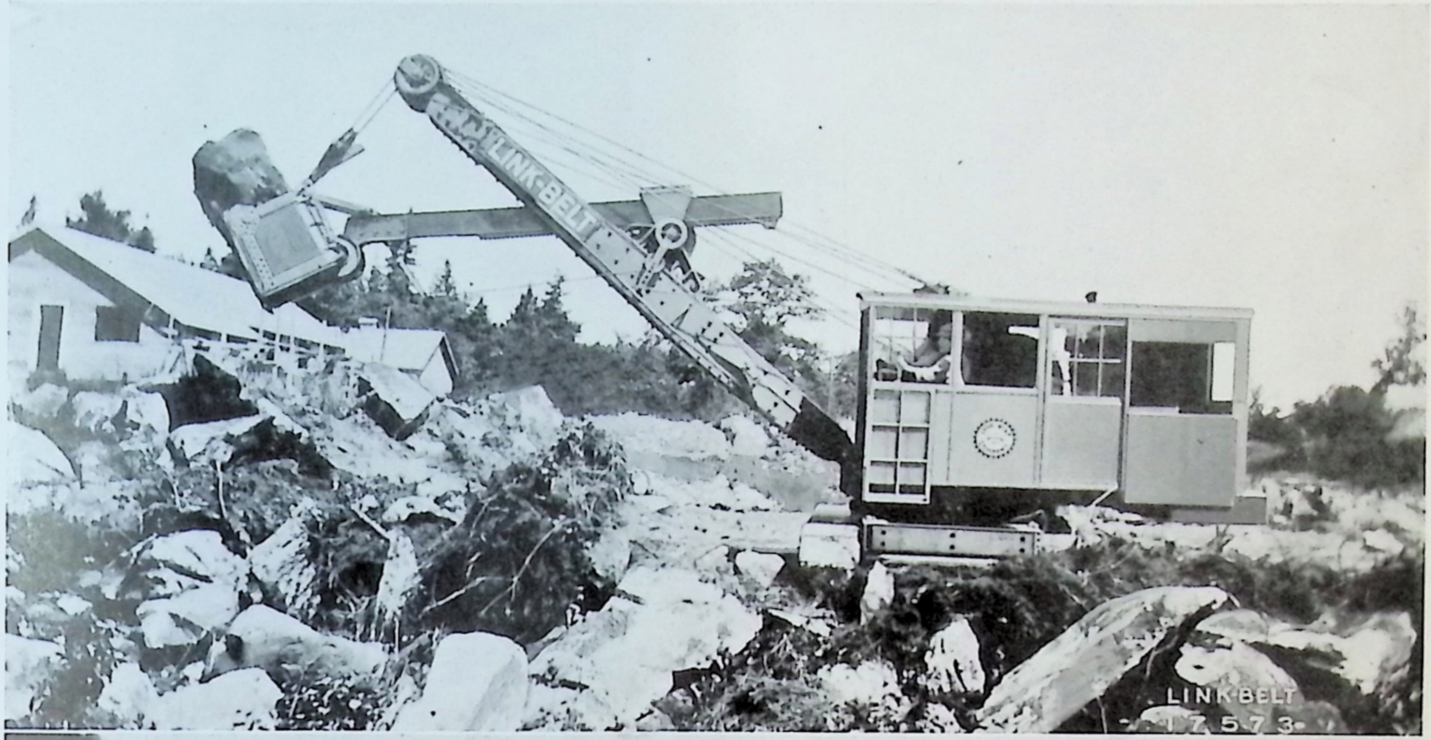
Fifteen-Ton Athey Wheels on Fairlead Arches

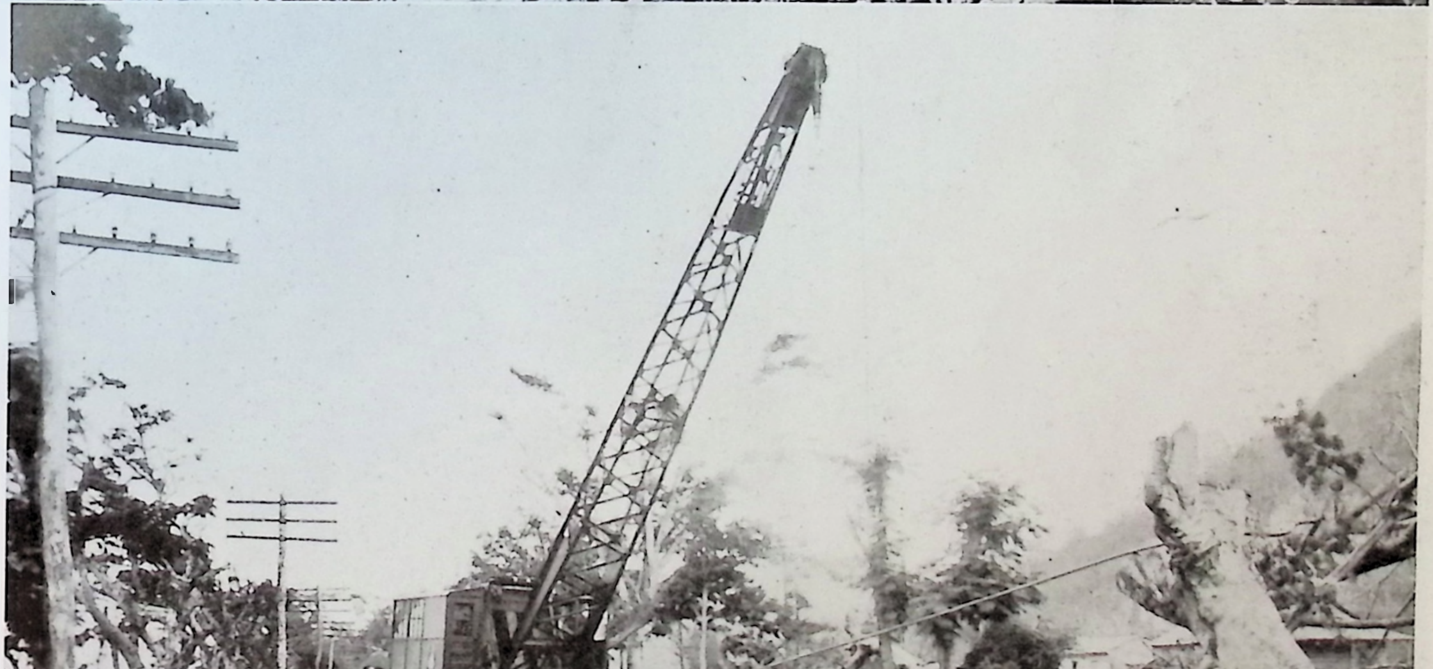


By equipping all Willamette-Ersted fairlead arches with fifteen-ton Athey truss wheels, a unit has been developed to handle the heavier loads with the greater strength and sufficient reserve capacity that assure dependability, long life, low maintenance cost and satisfactory performance under all operating conditions. The life of this unit compares favorably with that of the tractor. It is made by Athey Truss Wheel Co., Chicago

For Agencies and Specifications see Page 43

Link-Belt Shovels . . Cranes . . and Draglines

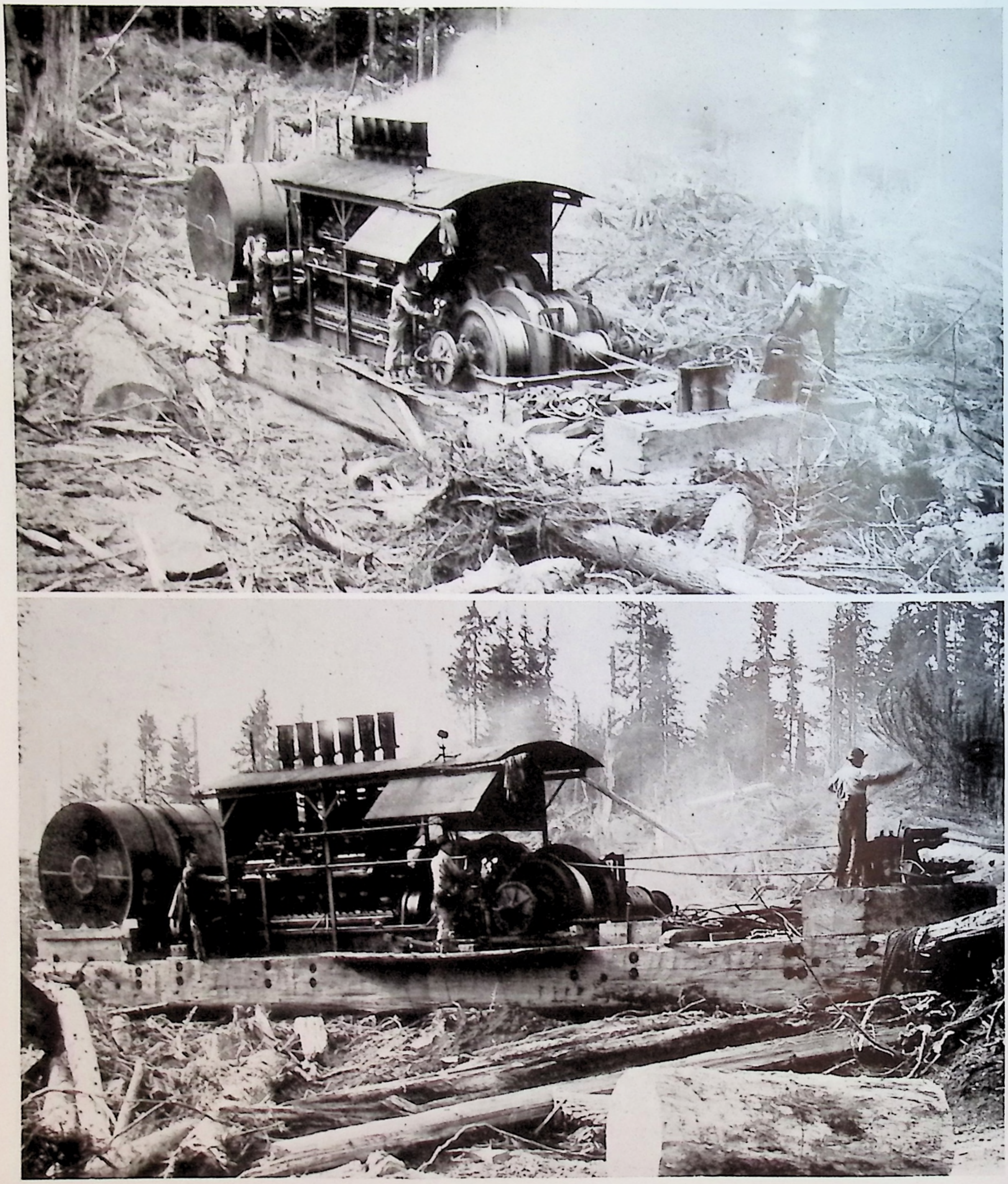




The performance of the Link-Belt shovel-crane-dragline has won its universal acceptance. Its advanced design represents the experience of over fifty years in material handling machinery manufacturing, and over thirty years in locomotive crane building. Built in capacities from ¾ yard to 2 yard, with gasoline, diesel or electric drive. Link-Belt headquarters during Pacific Logging Congress sessions, 417-419 Olympic Hotel

For Agencies and Specifications see Page 45

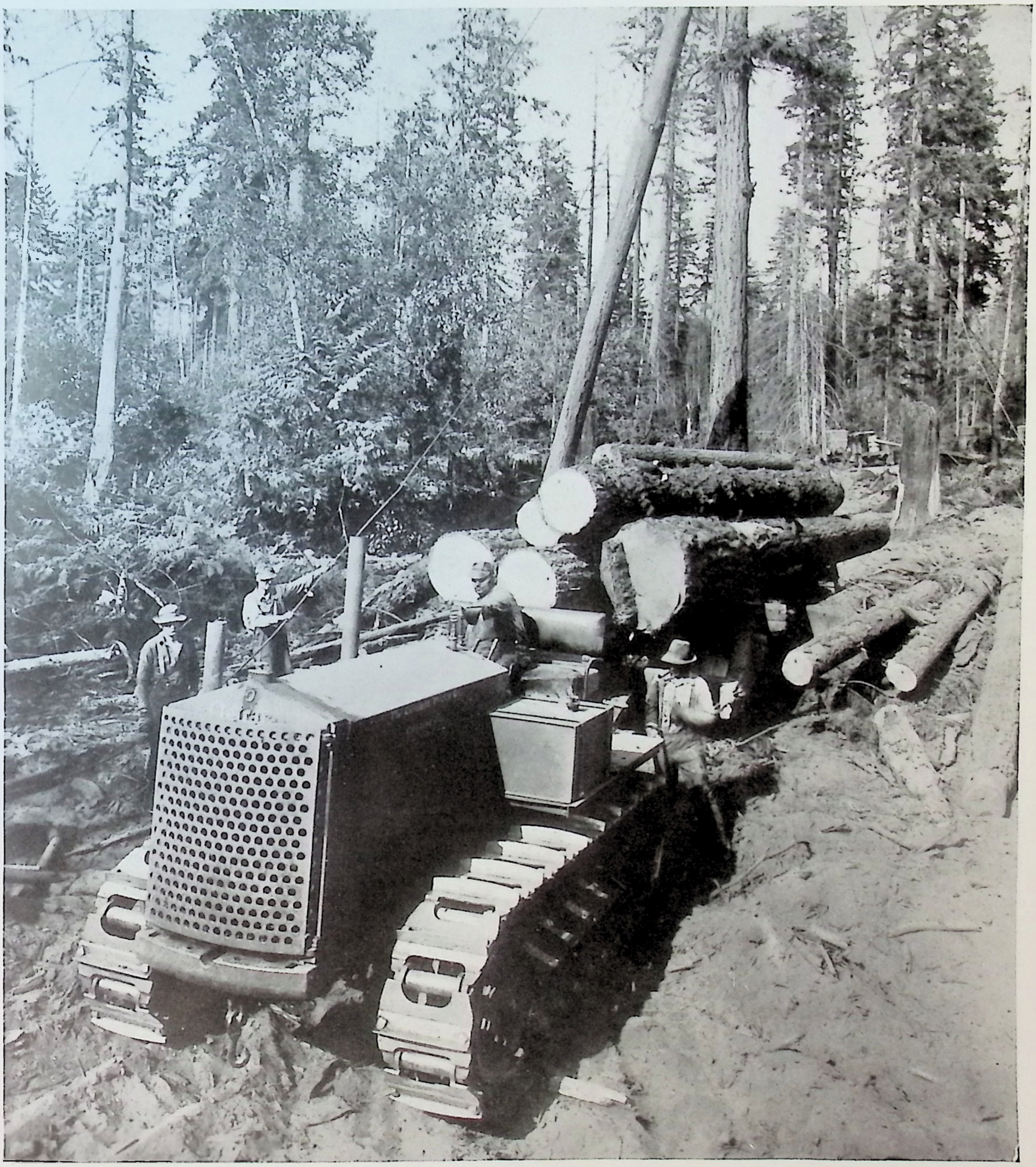
Turney Three-Speed Fairbanks-Morse Diesel Yarder



Above is seen the new Turney three-speed Fairbanks-Morse diesel yarder in operation at the Wynoochee camp of Schafer Brothers Logging Co., of Montesano, Wash. The machine is used for cold decking to the tail tree, averaging from 100 to 180 logs a day, yarding out as far as twelve hundred feet. Fuel consumption of this yarder has averaged less than 30 gallons per day, a tremendous saving over a steam unit in similar service

For Agencies and Specifications see Page 48

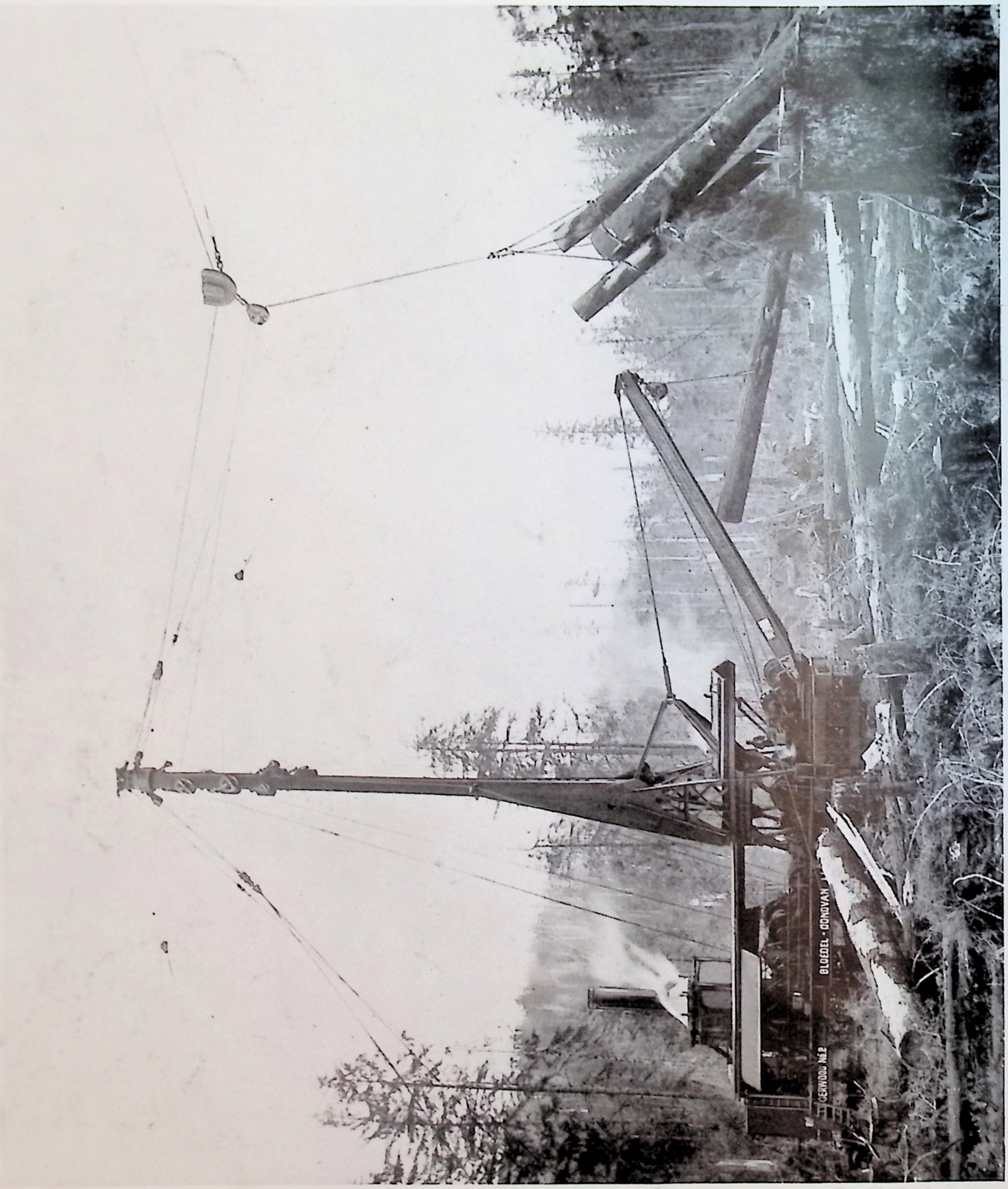
Cletrac Crawlers for Light and Heavy Logging



A 100 HP. Cletrac crawler tractor logging Douglas fir and spruce in the Hood's Canal section of the Olympic Peninsula. Cletrac crawler tractors in the 30 and 40 HP. size, with double drum winches, are also used extensively for lighter logging. All Cletracs powered with six-cylinder Wisconsin motors with electric starters. Distributed by Hill-Mills Co., Seattle, Spokane; A. C. Haag, Portland, Salem, Ore.; and J. W. Kerns Co., Klamath Falls, Ore.

For Agencies and Specifications see Page 44

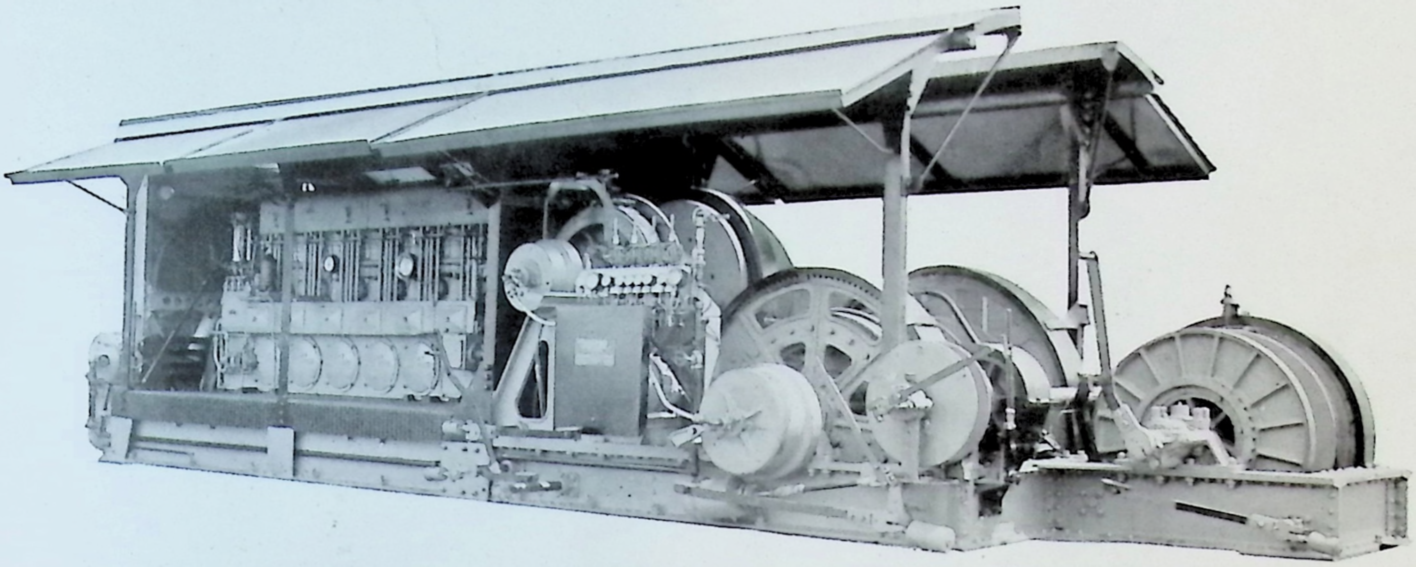
Cheaper Logs with Lidgerwood Spar Skidders

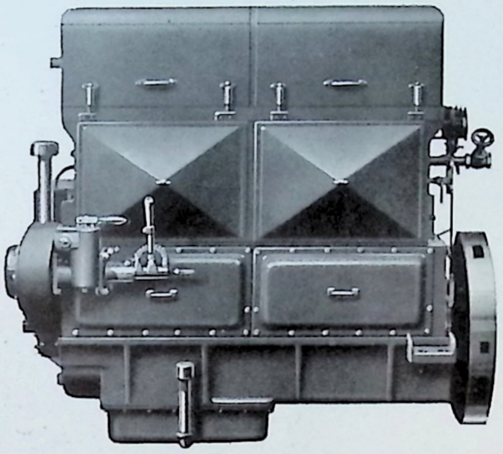


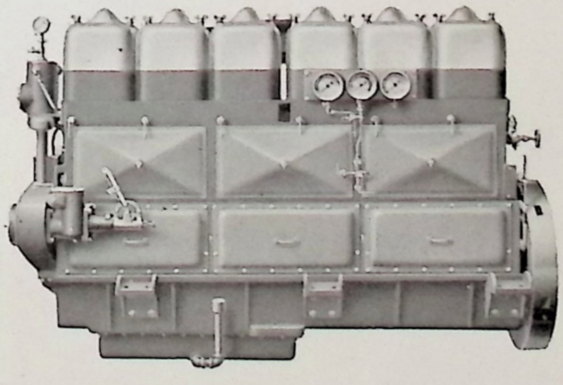
Among the most competent logging concerns, the steel spar skidder, invented, designed and developed to a high degree of perfection by Lidgerwood, is recognized and used as a sure way to reduce logging costs and give a large output of logs. The many advantages of the Lidgerwood steel spar skidder enable the logger to handle his work in the most economical way and produce logs at the very lowest cost

For Agencies and Specifications see Page 45

Atlas Imperial Full Diesels . . . "Cheaper Power"



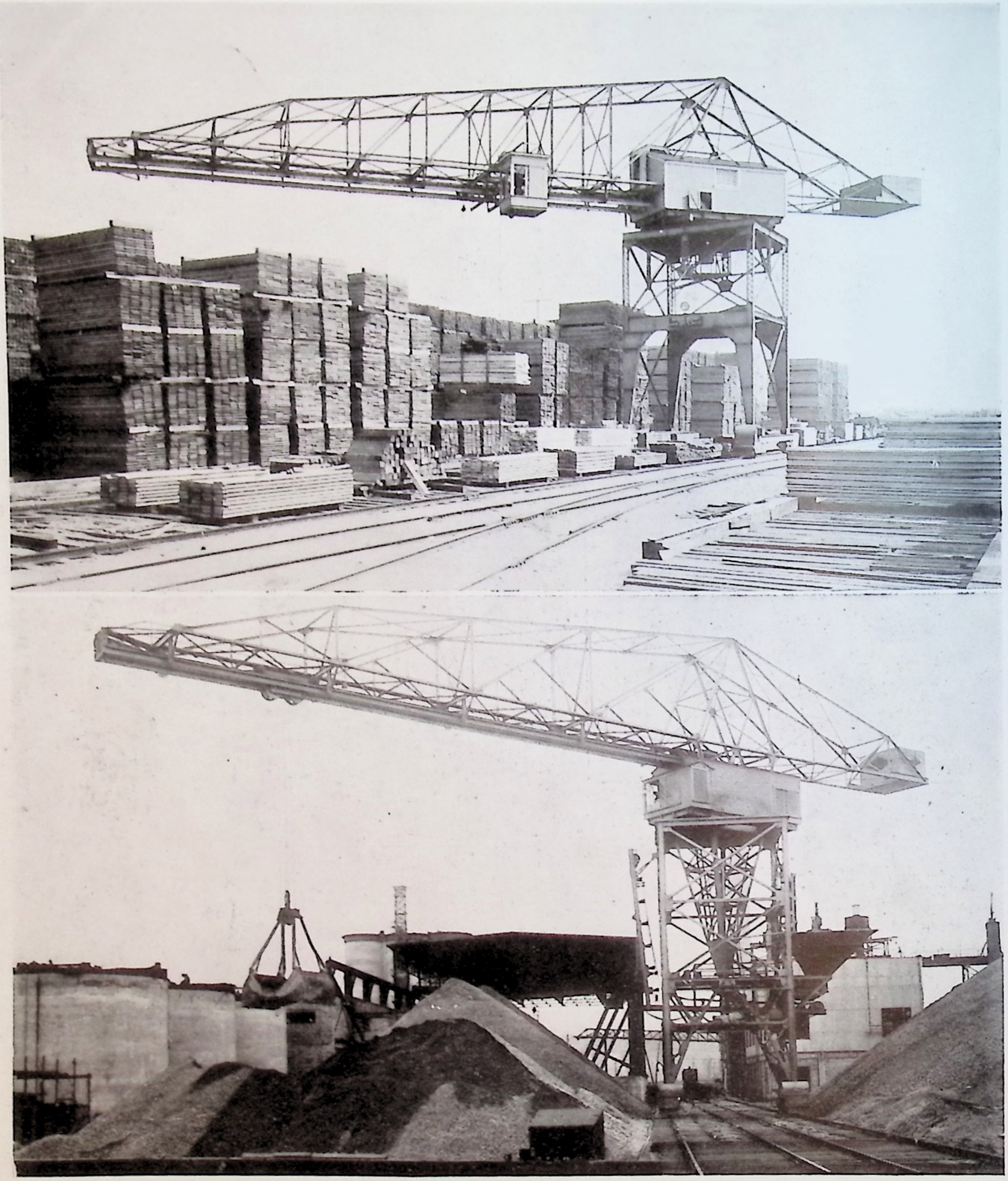




First to adapt the full diesel engine for logging equipment, excavators, oil well drilling outfits, tractors and industrial locomotives—the Atlas Imperial is being used more widely for these uses than any other full diesel made. Atlas Imperials are used in Bucyrus-Erie, P & H (Harnischfeger), Link-Belt and Thew excavators, in Lidgerwood logging equipment and in Plymouth locomotives. Atlas Imperial Diesel Engine Co., Oakland, Cal.

For Agencies and Specifications see Page 43

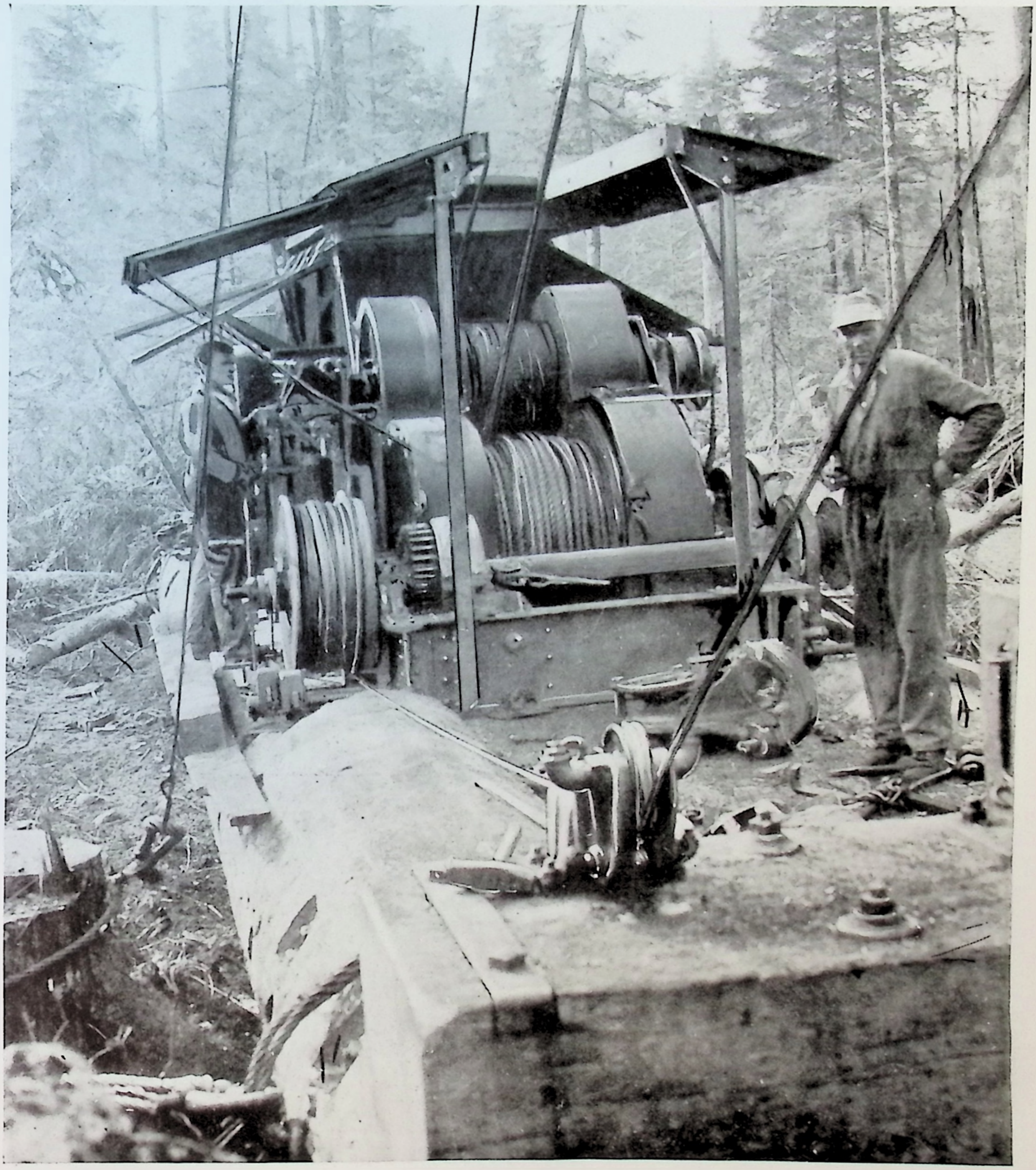
Colby Cranes Solve Material Handling Problems



Two typical installations of Colby cranes handling difficult problems. Colby cranes are designed and built to meet the purchaser's requirements. Above, lumber handling crane furnished the St. Paul & Tacoma Lumber Co. Below, the 13-ton grab bucket crane furnished the Pacific Coast Cement Co., Seattle, Wash. The Colby Steel & Engineering Co., Seattle, builds a wide range of cranes with capacities from four to twenty-five tons

For Agencies and Specifications see Page 44

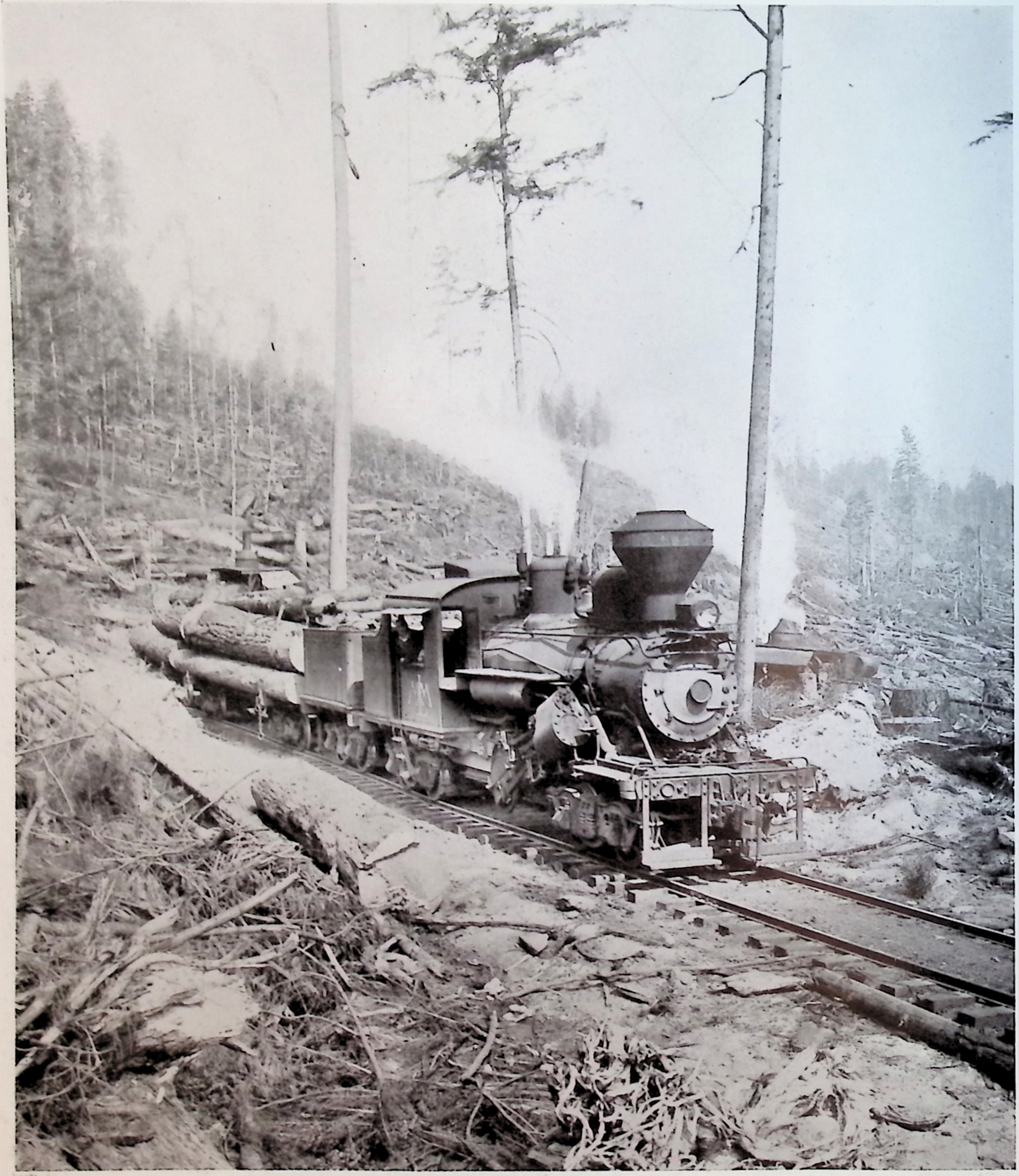
Skagit 300 H. P. Gas Yarders Lower Logging Costs



Equipped with a powerful Waukesha motor, Timken roller bearings throughout, heavy auxiliary flywheel, four speeds and full air controls, this 300 HP. Skagit gas yarder is producing cheaper logs at the Machias operation of the Monroe Logging Co. Manufactured by Skagit Steel & Iron Works of Sedro-Woolley, Wash., pioneers and leaders in the field of internal combustion powered logging machinery

For Agencies and Specifications see Page 47

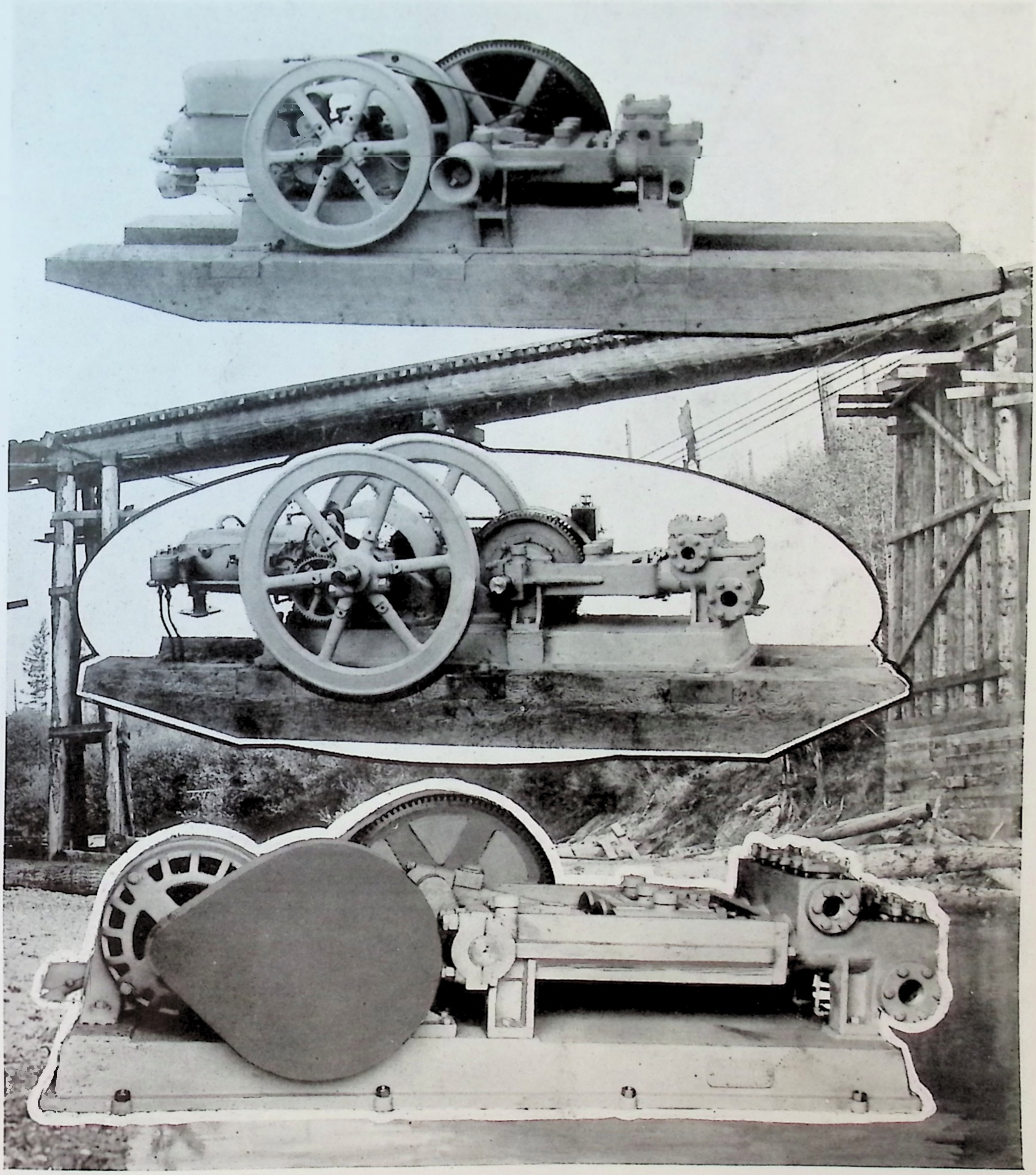
You'll Find the Climax . . . Where You Find Logs



Since the very inception of railroad logging, Climax engineers have kept fully abreast of the increasing demands upon motive power in the woods. Per ton of locomotive, the Climax will haul the greatest number of cars of logs, with safety, on steep grades. Repair parts, and all locomotive equipment, are serviced from the Seattle branch of the Climax Locomotive Co.

For Agencies and Specifications see Page 44

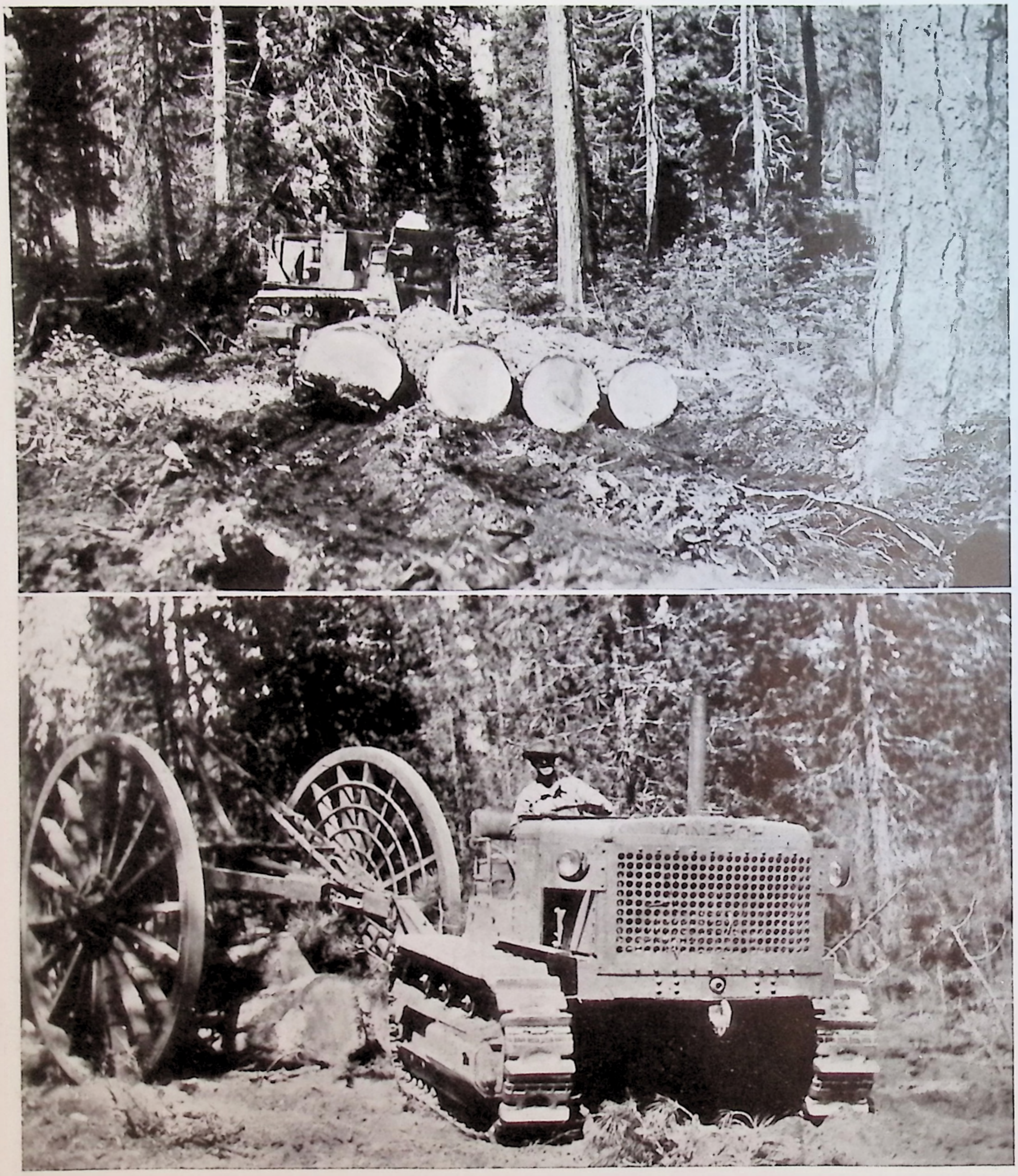
Fleck Pumping Equipment Insures the Water Supply



Water for donkeys and logging camps is a factor of first importance in successful logging operations. The means to be employed in furnishing a continual, economical and abundant supply is a vital question. Fleck pumping equipment is the proven answer to that question. Hundreds of logging operators on the Pacific Coast already know it from actual experience. Manufactured by Fred Leckenby, Tacoma, Wash.

For Agencies and Specifications see Page 45

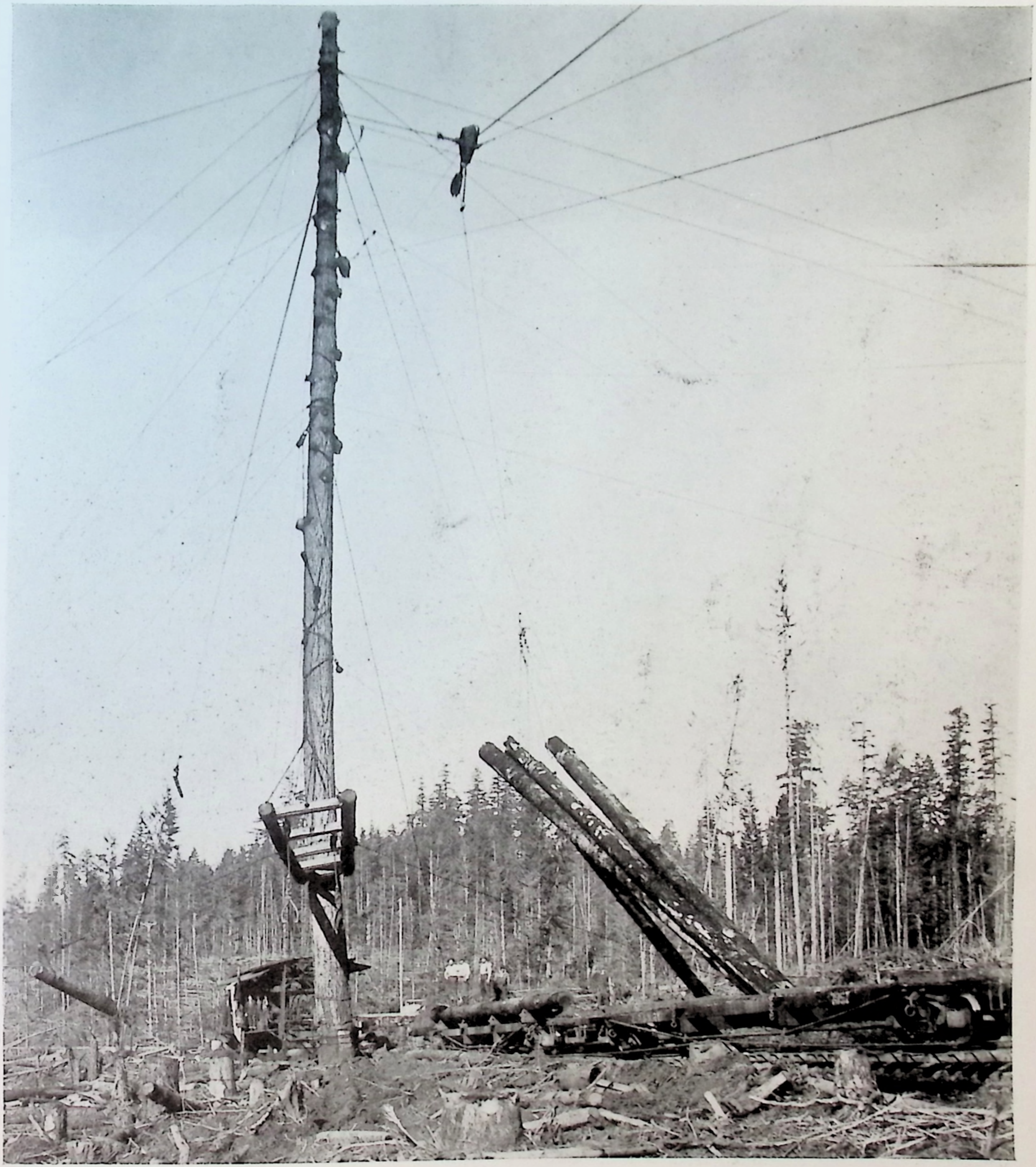
A-C Monarch Tractors Are Cutting Logging Costs



Above—Allis-Chalmers Monarch "75" dry skidding logs for Weyerhaeuser Timber Co., Klamath Falls, Ore. Below—Six tractors, including an Allis-Chalmers Monarch logger and one loader, recently loaded 70 cars of short logs in eight hours at the Klamath operation of the Pelican Bay Lumber Co. Monarch loggers have exceptional power. Clutch controlled crawlers prevent damage to young trees. Note steering wheel feature

For Agencies and Specifications see Page 43

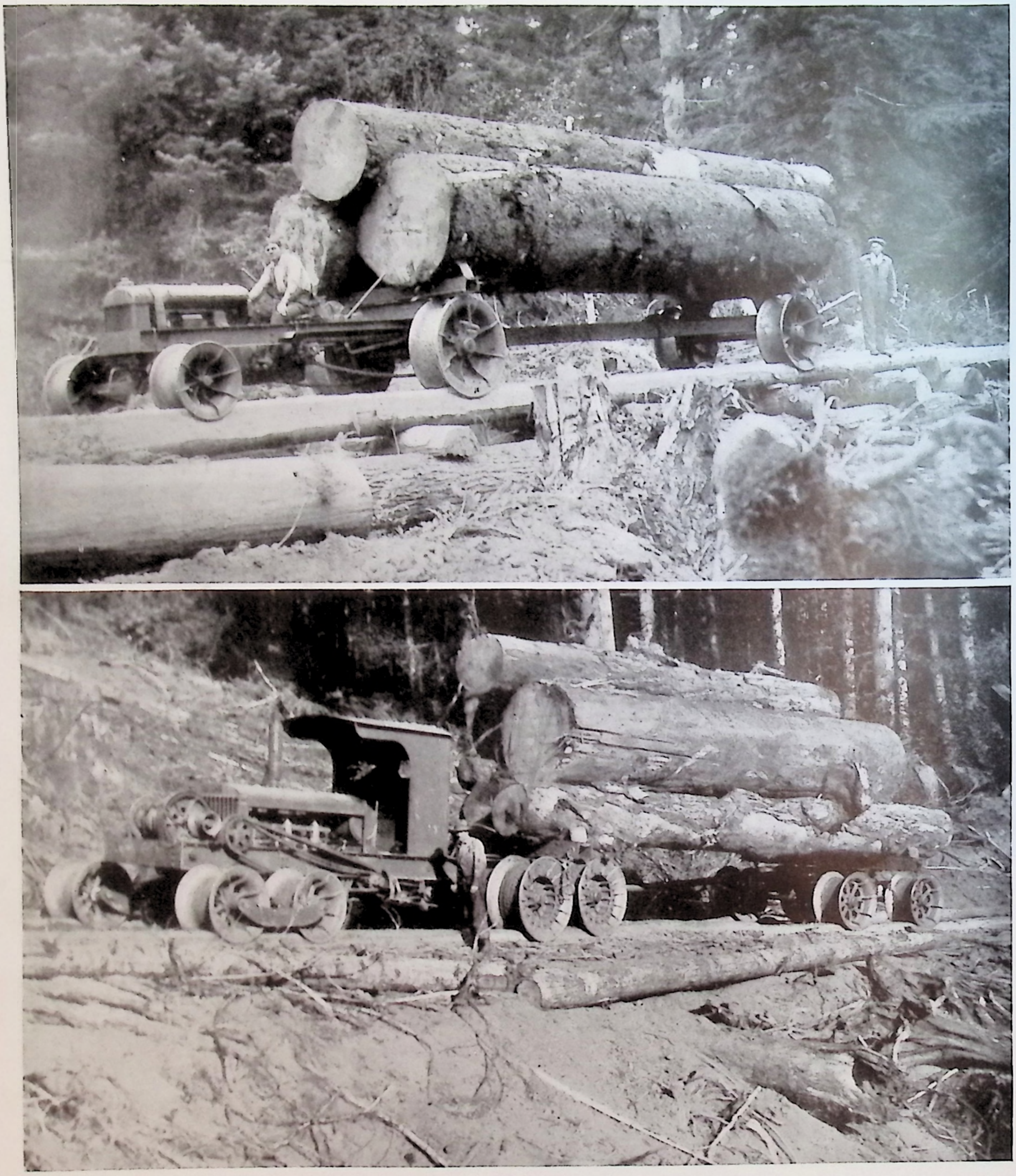
Union Wire Rope in Heavy Duty Logging Service



Numerous large logging operations in the Pacific Northwest find Union wire rope nets them lower rope cost per thousand feet of timber logged. Above photograph shows Union wire rope in service at the Ryderwood, Wash., operation of the Long-Bell Lumber Co. The Northwest headquarters of the Union Wire Rope Corporation are maintained at 515 North Twenty-second Street, Portland, Ore., under the direction of R. L. Adams

For Agencies and Specifications see Page 48

Logging with Steeples Pole Road Haulers



Steeples pole road log haulers eliminate railroad costs and operate under any topographical and weather condition. Strictly a one-man machine. Small machine, 30 HP., will haul thirty thousand feet daily. Intermediate size, 75 HP., will haul fifty thousand feet. Large machine, 165 HP., will haul one hundred thousand feet—average two to four-mile haul. Powered with Climax motors. Manufactured by Steeples Engineering Co., Seattle

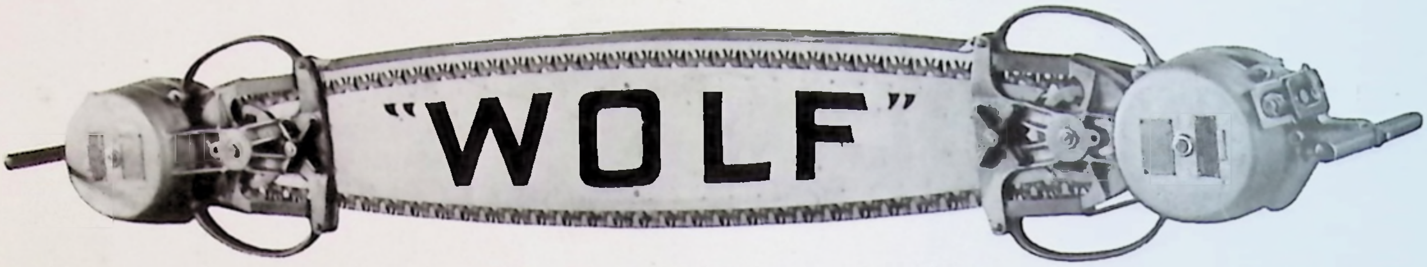
For Agencies and Specifications see Page 47

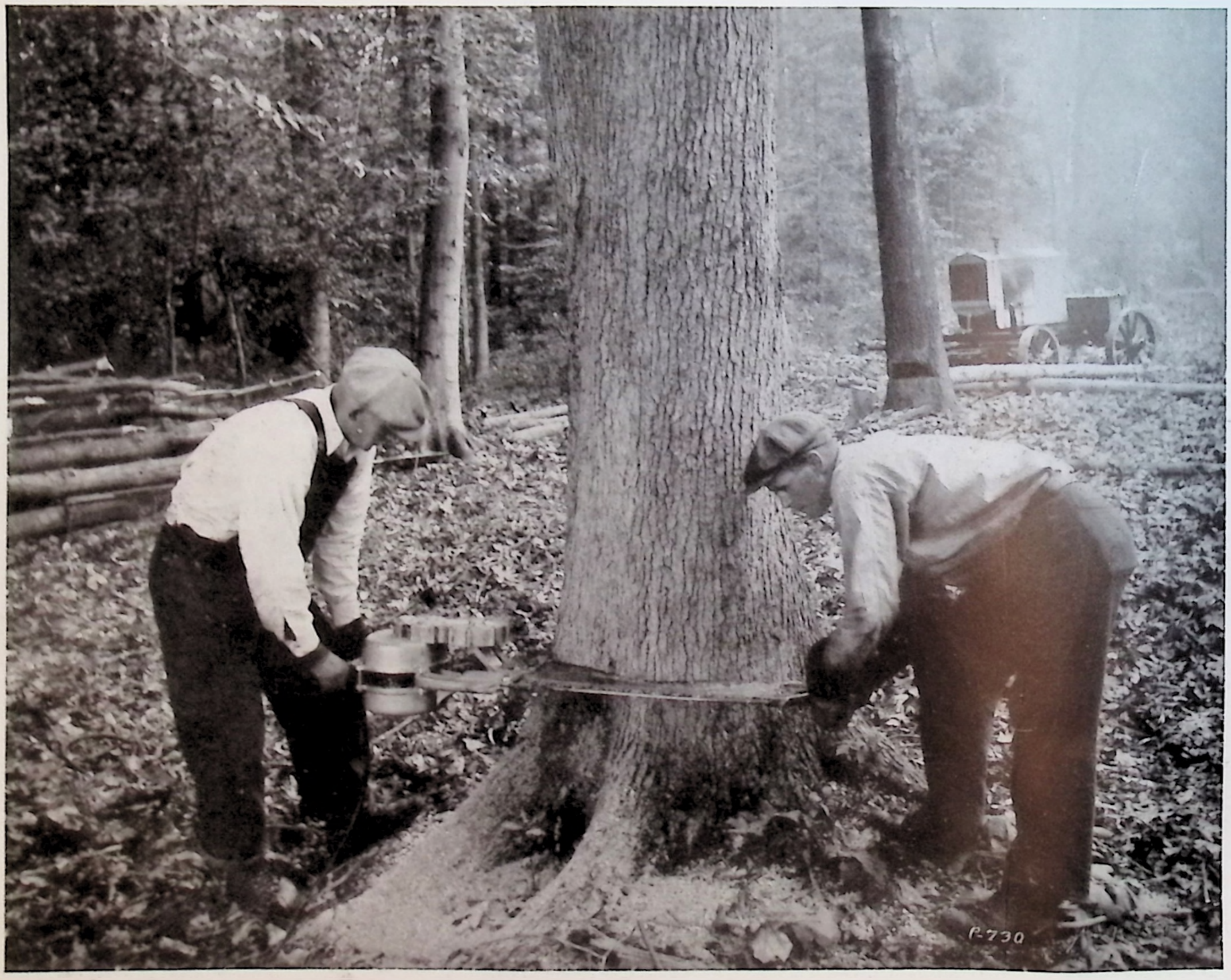
Why Simonds Saws Are Favorites in the Woods

Every timberman knows the reason—it's Simonds steel quality plus perfect mechanical construction—and that means easier and faster cutting. Sold by wide-awake dealers everywhere. Simonds Saw and Steel Co., Portland, Ore.; Seattle, Wash.; San Francisco, Cal.; Los Angeles, Cal.; Vancouver, B. C. At any of these Pacific Coast branches you will find the answer to your saw problems, both for the woods and for the mill

For Agencies and Specifications see Page 47

Cutting Timber in Record Time with "Wolf" Saw

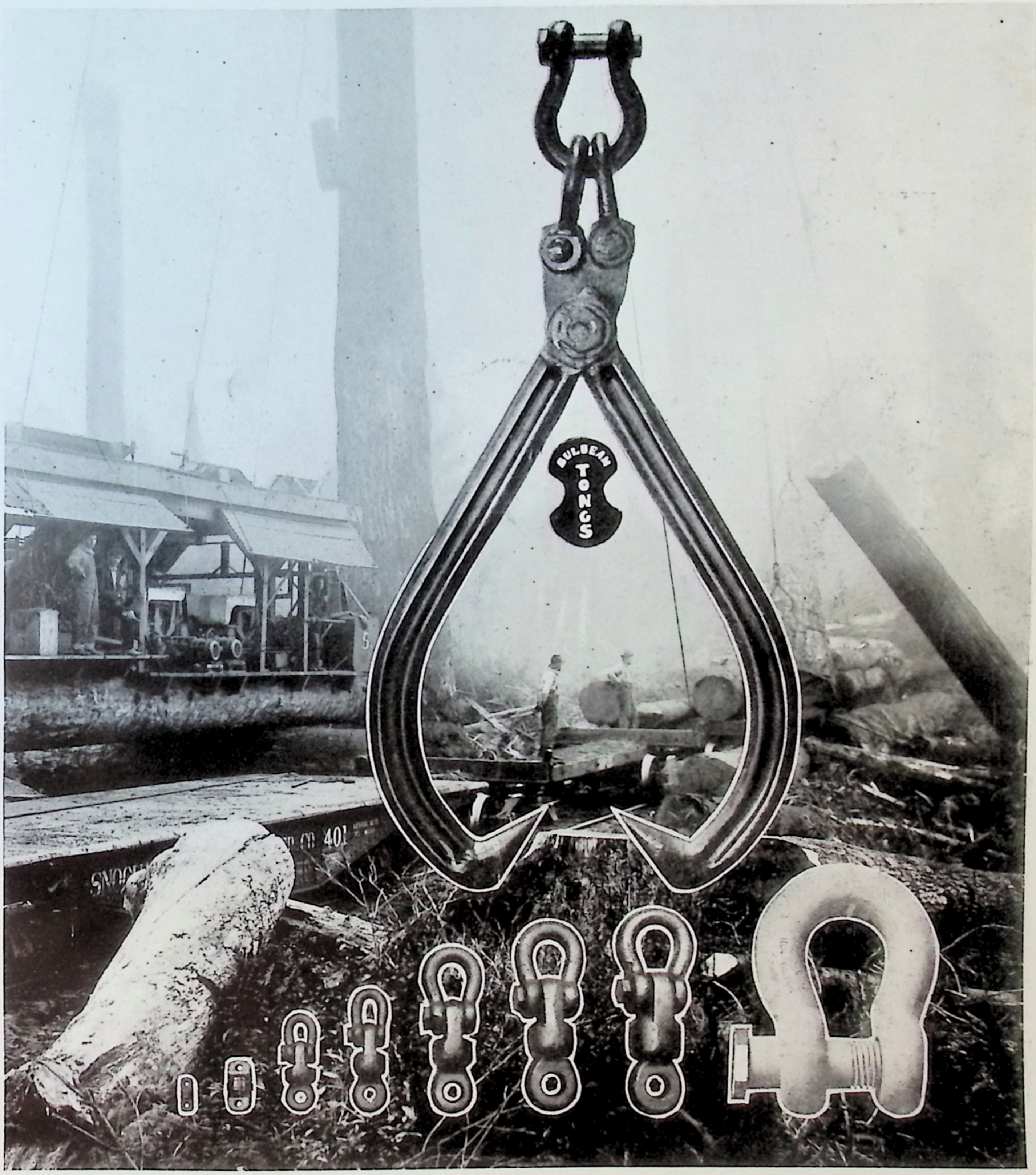




Near Vineland, N. J., the Hoosier Engineering Co., of Chicago, cut a right of way for a high-power transmission line in record time with a "Wolf" timber sawing machine operating from a portable A. C. 220 volt, 60 cycle, 3 phase generating outfit, gasoline driven. The machine speeded progress 25 per cent. Twenty-inch pine was felled in 38 seconds; 18-inch oak in three minutes. Made by Reed-Prentice Corp., Worcester, Mass.

For Agencies and Specifications see Page 47

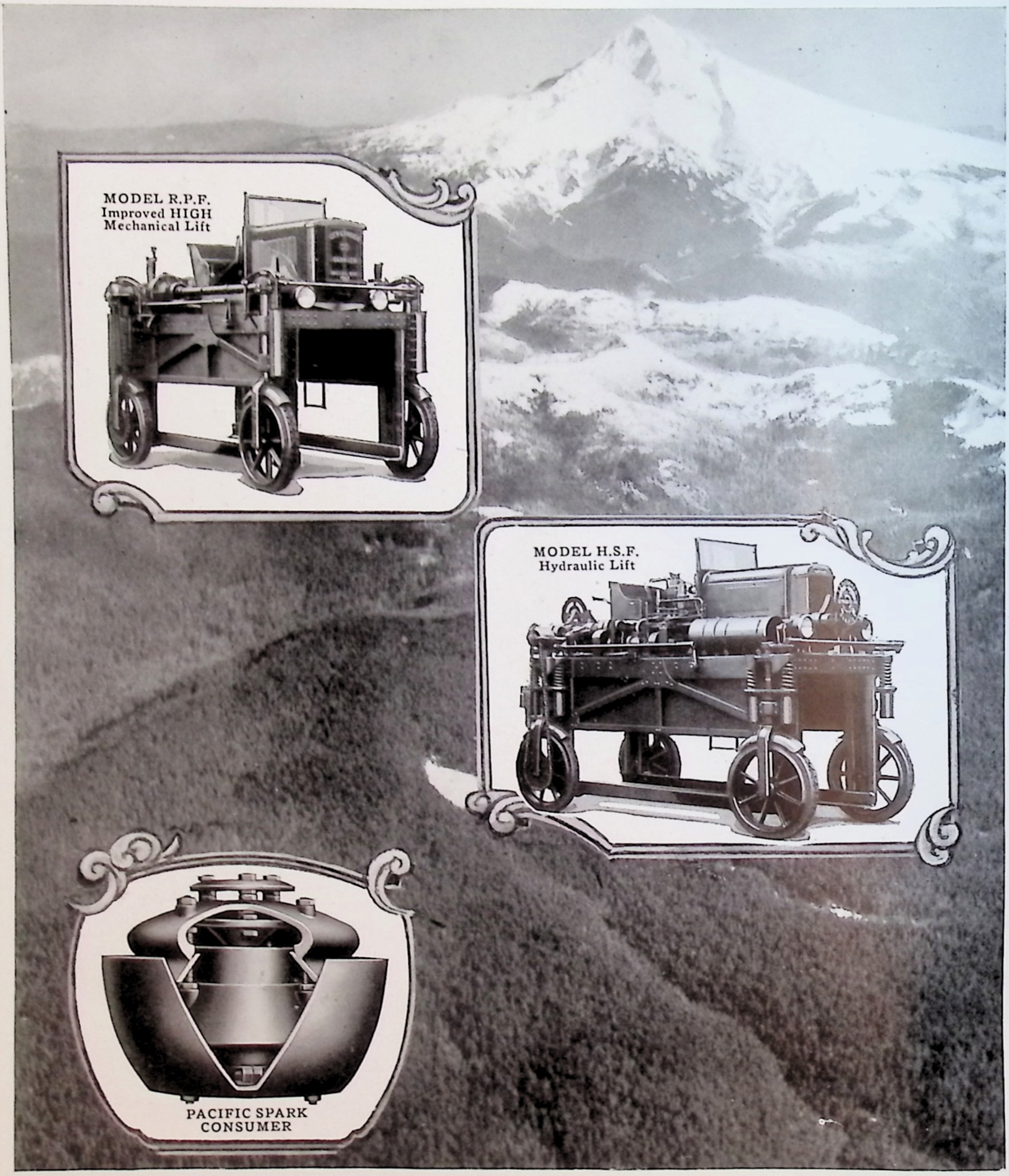
World's Largest Line of Forged Logging Tools



"Hickok" forged alloy steel tools are scientifically heat treated to withstand "high ball" logging. Over 400 sets of "Bulbeam" logging tongs are in use, because of their strength, ease of handling and moderate weight. Hickok swivels, dirt-tight and packed in grease, pay for themselves in rope saving. Hickok unbreakable clevises are 50 per cent stronger, wear longer and will not freeze the pin. Hickok & Hickok, San Francisco, and Portland

For Agencies and Specifications see Page 45

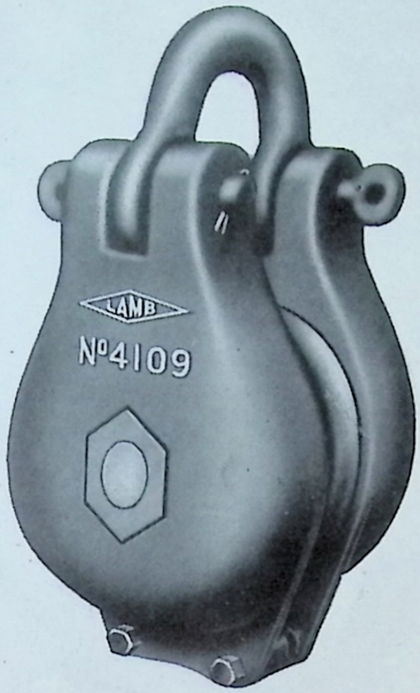
Let These Gerlinger Products Lower Your Costs



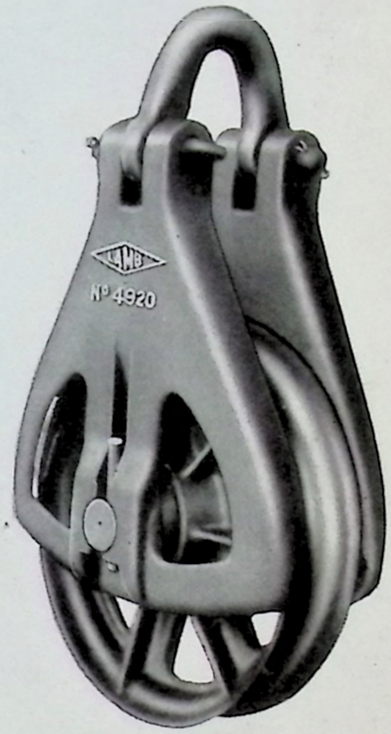
Two Gerlinger products used by progressive lumbermen to lower production costs, possible because of the designers' thorough knowledge of the industry's problems. Gerlinger lumber carriers are extensively used for this reason. Pacific spark consumers, through elimination of the old "arrester" principle with its periodical repairs and uncertain action, give the logger a spark consumer positive in action. First cost is the only one

For Agencies and Specifications see Page 45

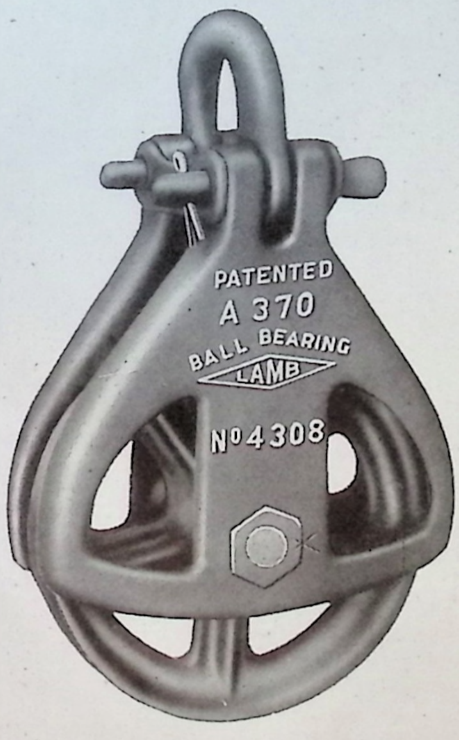
Stronger and Safer . . Lamb-Grays Harbor Blocks



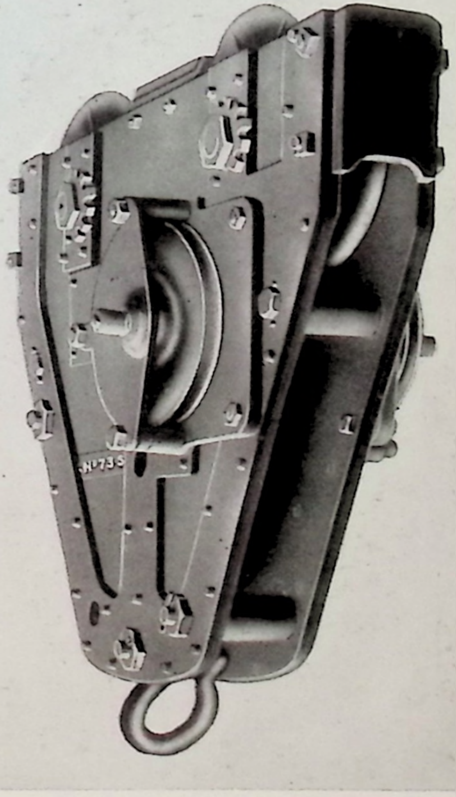
No. 4109
Ball Bearing Moving Block
Sheave 9"x2"



No. 4920
Ball Bearing Knockdown Corner
Block. Sheave 20"x3½"



No. 4308
Ball Bearing Trip Block
Sheave 8"x1¼"

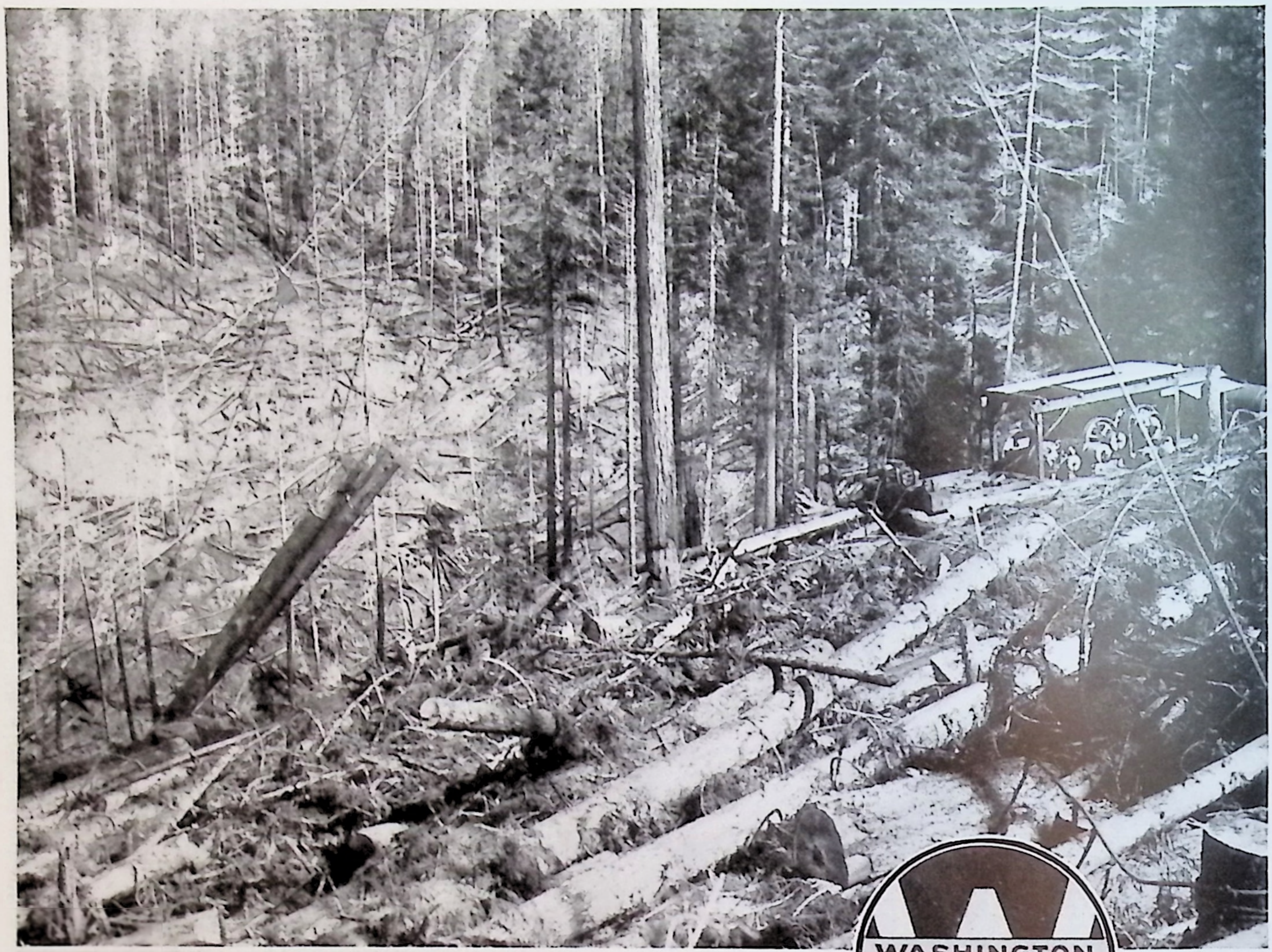


No. 73-S
Roller Bearing Skidder Carriage
with Double Slack Pullers

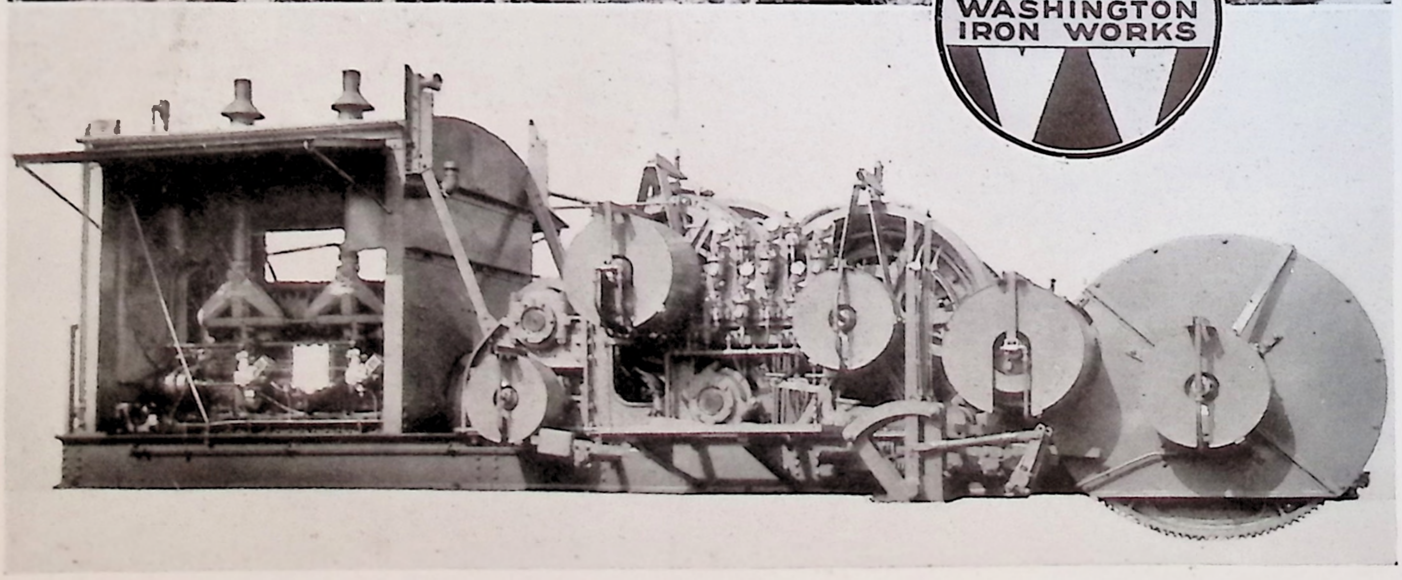
More skylines, trip lines and haulbacks are running through Lamb-Grays Harbor ball bearing blocks in the Pacific Northwest every day. More and more, loggers are finding that these pioneer blocks require less lubrication and upkeep, fewer adjustments, and that they have full bearing capacity on thrust. Full details of these four new blocks may be obtained from the Lamb-Grays Harbor Company, Hoquiam, Washington

For Agencies and Specifications see Page 45

New Washington "Great Six" Gasoline Skidder



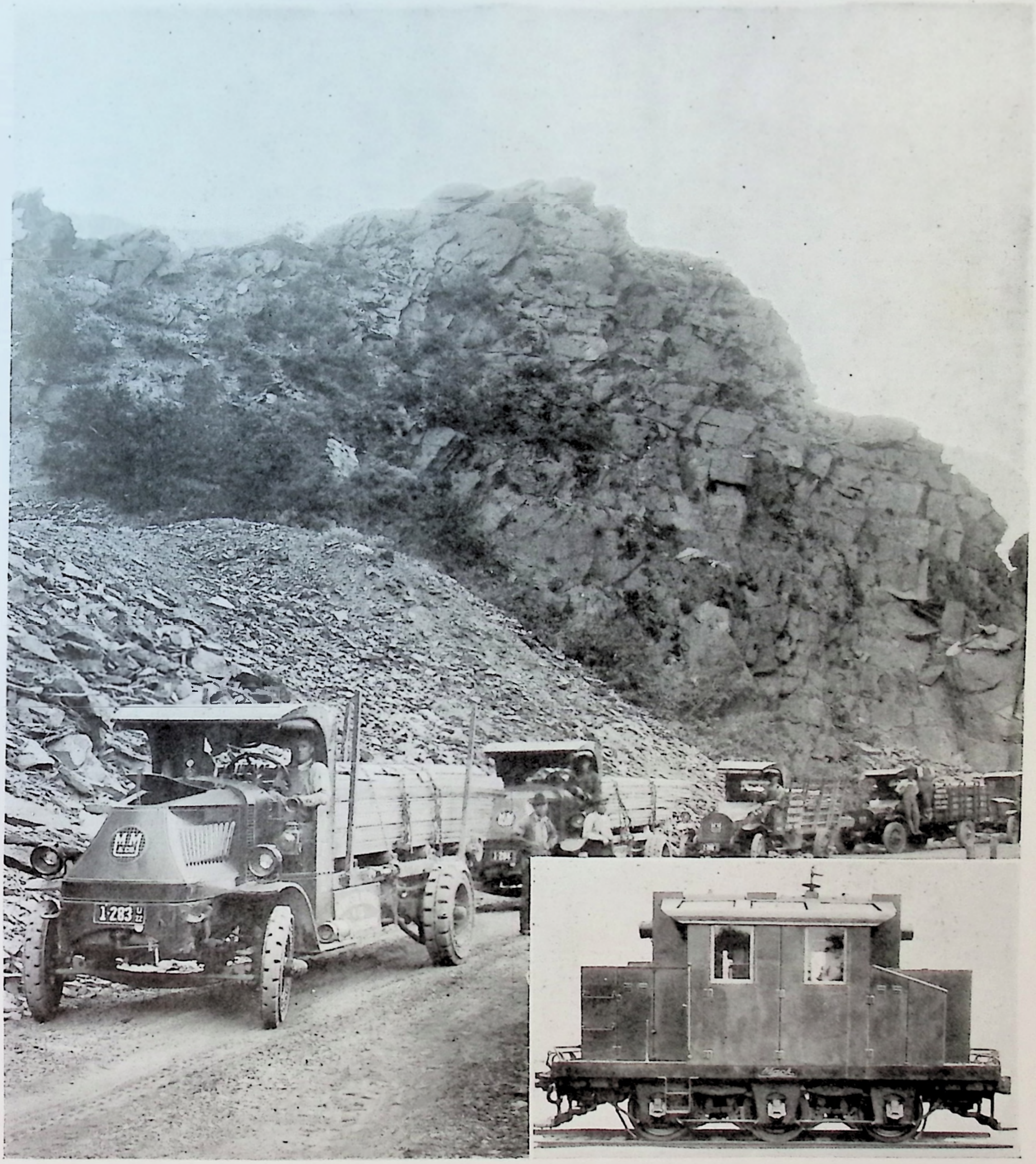
WASHINGTON
IRON WORKS



An important feature of this new 300 HP. Washington interlocking gas skidder is its four speeds, with patented air valve controlled skidding drums. A touch on the valve levers and the most efficient hauling speed is instantly applied. Real flexibility. Unlike steam, its maximum power is always available regardless of the length of haul. A turn of starter switch and the day's work can begin. Built by Washington Iron Works, Seattle

For Agencies and Specifications see Page 48

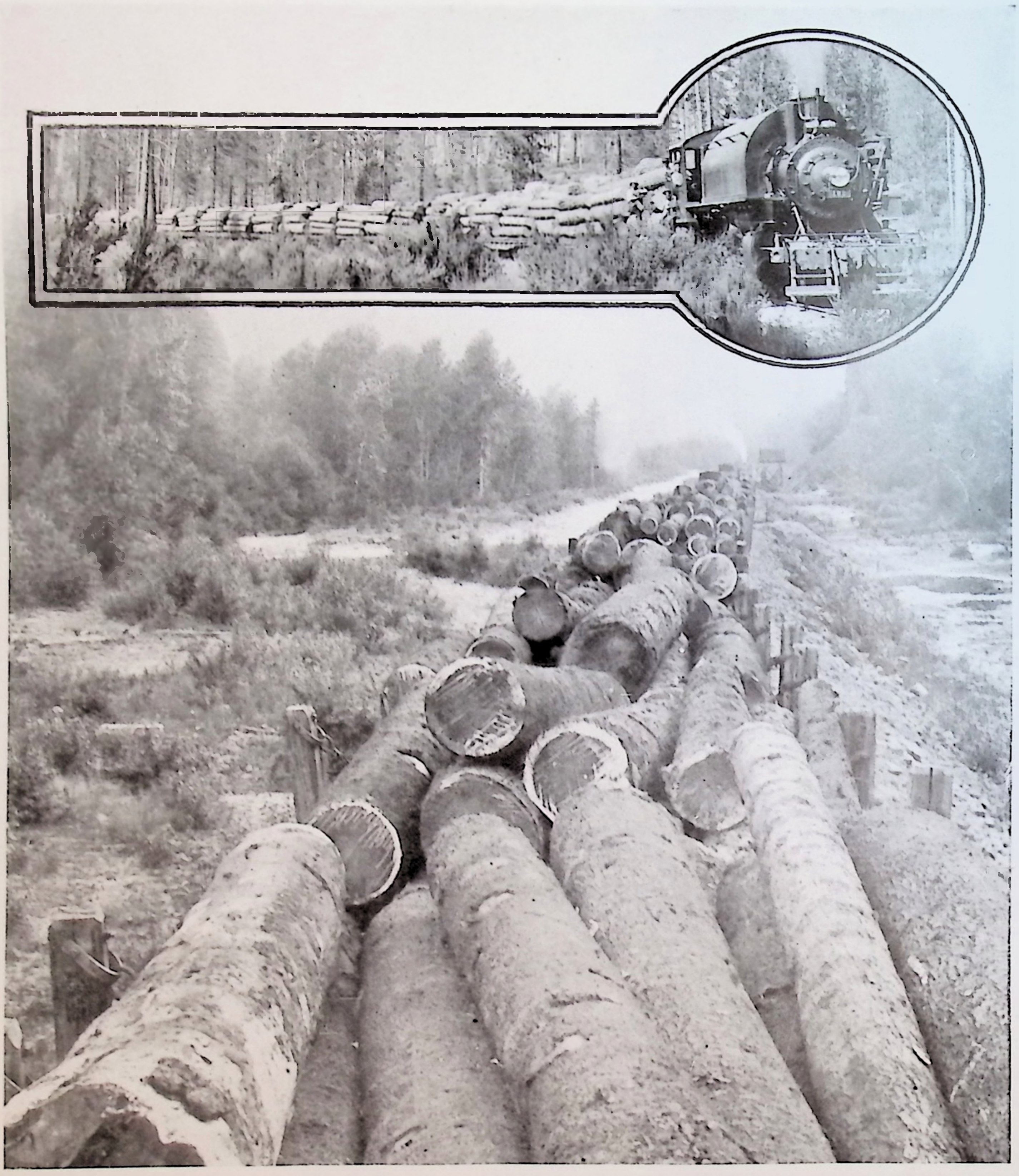
On Road or Rail . . . Mack Transportation



Wherever there is a logging operation, Mack trucks are a familiar sight; and either on the road or on the rails Mack solves the problem of hauling logs and lumber. On the rails Mack gas-electric locomotives are not only more economical than steam, but eliminate fire hazard of sparking engines. If you are in doubt as to the application of Mack trucks (1½ to 10 tons) or locomotives (10 to 80 tons) consult your nearest Mack branch

For Agencies and Specifications see Page 46

American Locomotives . . . Dependable Log Haulage



Zimmerman-Wells-Brown Co., of Portland, agents for the American Locomotive Co., present two typical log hauling scenes in the pine region of the West, showing application of rod locomotives to main line logging railroad service. Above is seen the American locomotive employed by Ewauna Box Co., of Klamath Falls, Ore. The other view shows a heavy train of white pine logs under way in the Inland Empire

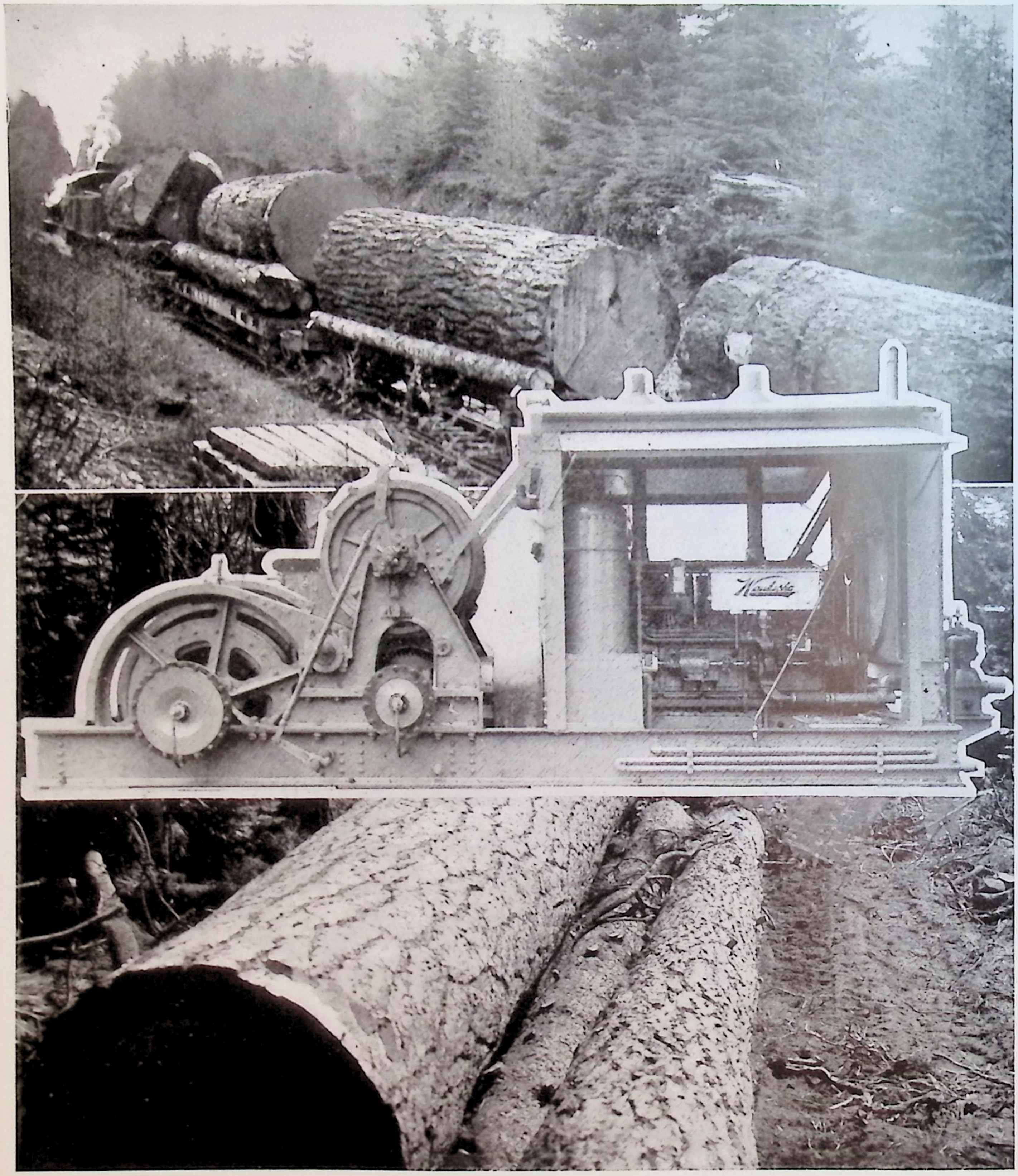
For Agencies and Specifications see Page 48

Tru-Lay Wire Rope . . . and Don Lining

Tru-Lay preformed wire rope resists the worst of rope destroyers, "bending stresses." Each wire and strand is literally drawn to the shape it must assume in the finished rope. Don, the all-weather brake lining, holds when wet, never scores the drum, never slips, squeaks; will not fire, engages instantly. The better lining. Tru-Lay wire rope and Don brake lining are distributed by Mill & Mine Supply Co., Seattle, Wash., and Portland, Ore.

For Agencies and Specifications see Page 46

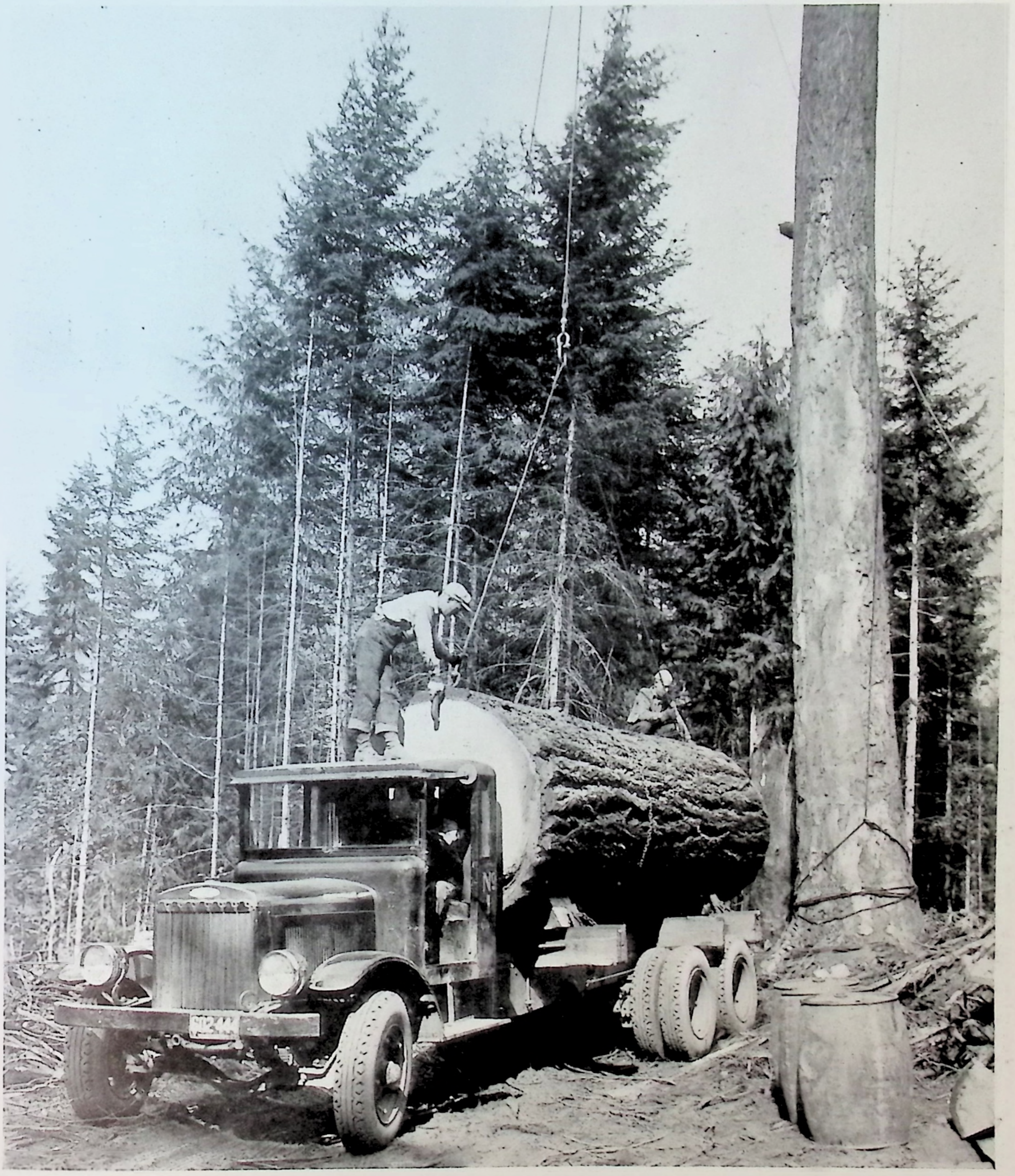
Waukesha Meets Every Logging Power Demand



Six-cylinder $7\frac{3}{4} \times 8\frac{1}{2}$ *Waukesha engine developing 300 HP. is featured in Washington Iron Works "Great Six" yarder. Careful testing in the latest and most accurate type of cradle dynamometer and tilt testing equipment insures that every Waukesha engine sold will meet the strenuous power demands of Pacific Coast logging service. Waukesha engines are built in sizes up to 300 HP. for yarders, tractors, cranes, shovels and lighting plants*

For Agencies and Specifications see Page 48

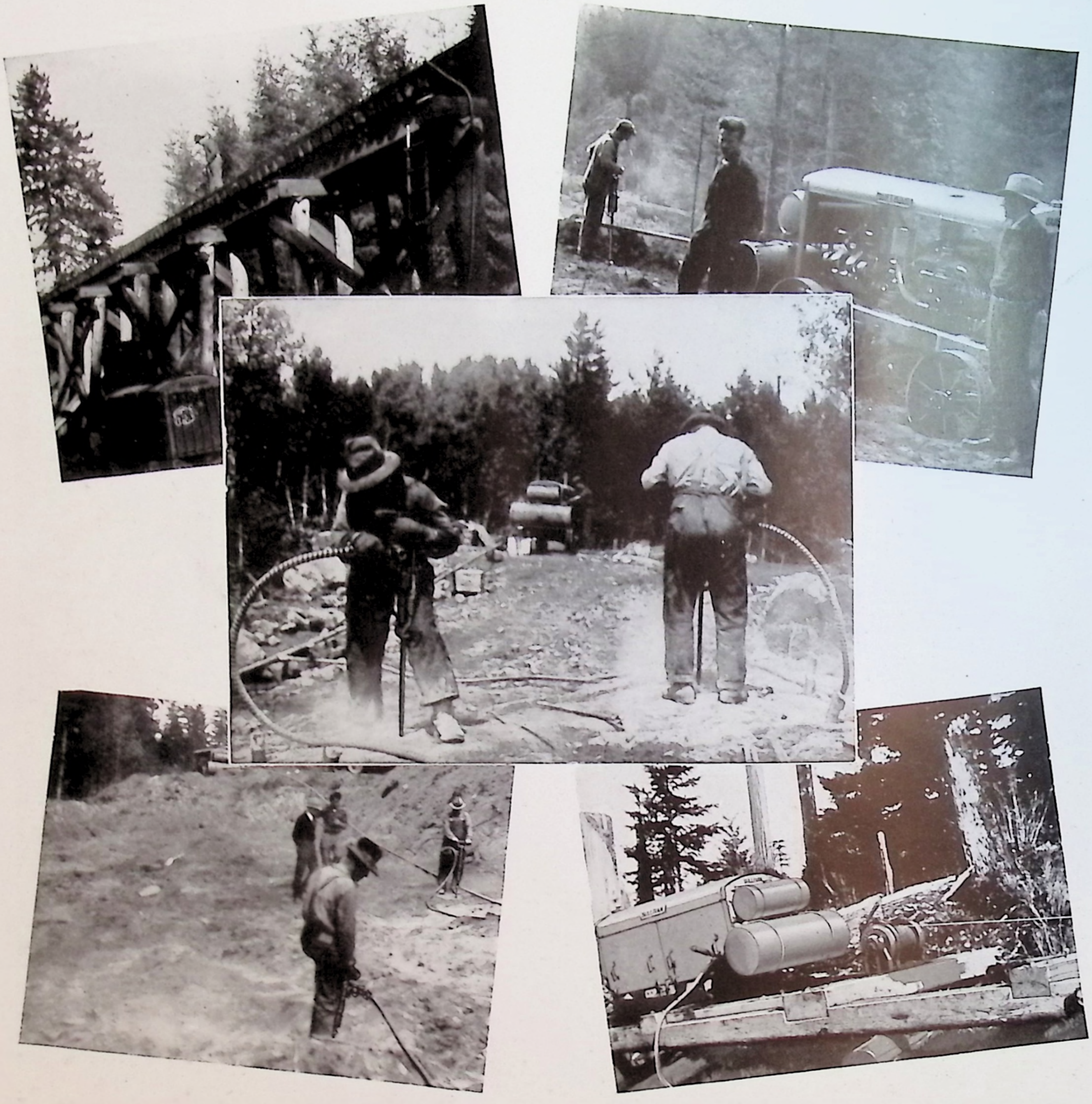
Moreland Meets Every Log Hauling Demand



One of the three Moreland six-wheel trucks hauling logs for Columbia Box & Veneer Co., near Oakville, Wash. This model carries thirty thousand pounds gross load, or eight and a half tons net. On a four and a half mile haul, these trucks are making ten round trips a day, delivering from one hundred to one hundred and forty thousand feet of logs per day. Moreland six-wheelers are powered with six-cylinder, 97 HP. Hercules motors

For Agencies and Specifications see Page 46

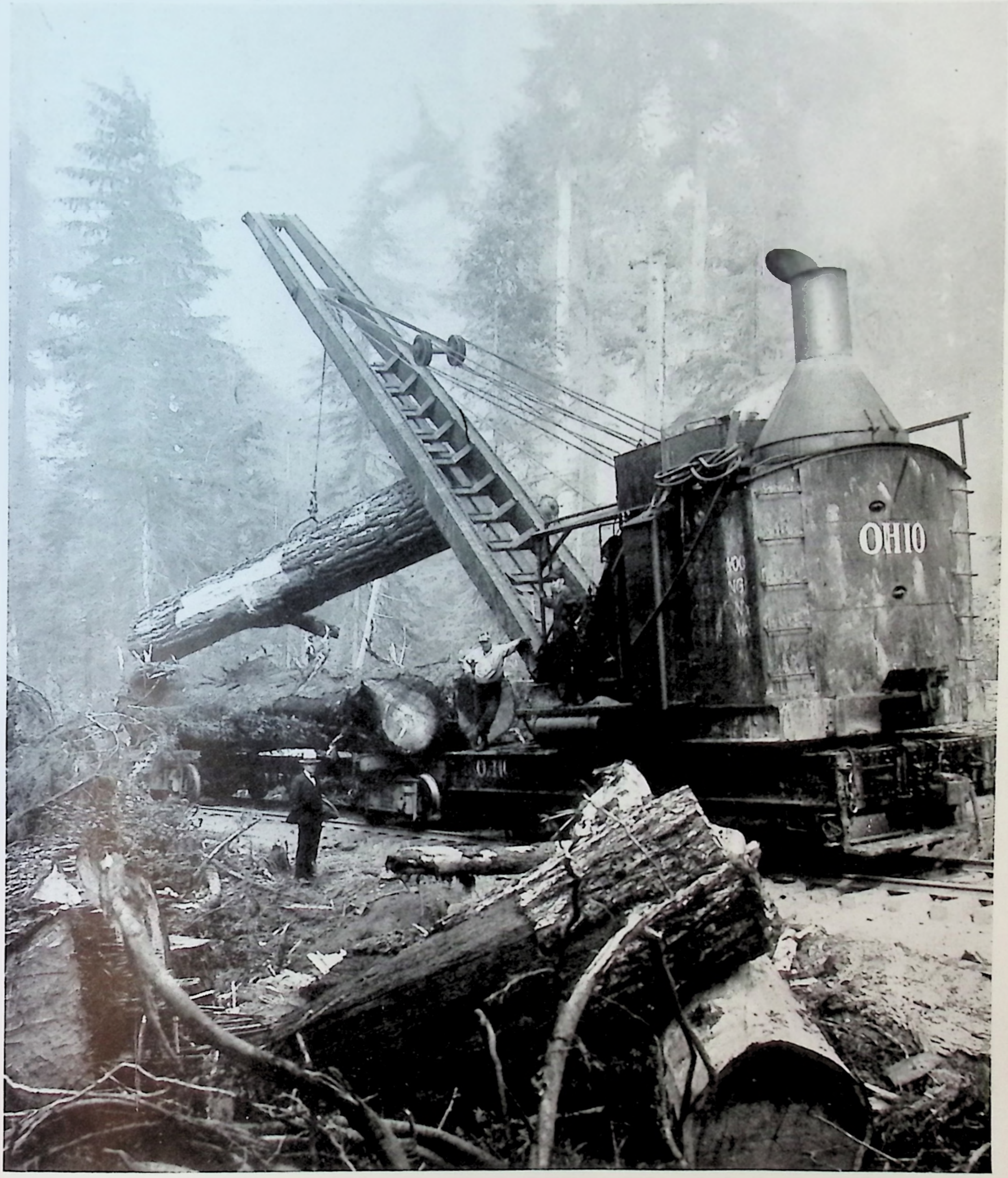
When Roads or Railroads Are Wanted Quickly



Loggers have learned to depend upon Sullivan compressors and air tools when speed is the watchword. Here are Sullivan vibrationless compressors and air drills at work for the Weyerhaeuser Timber Co., West Fork Logging Co., Silver Falls Timber Co., and other interests. They are changing goat trails to roads and railroads, rapidly, at low cost. Sullivan compressors, drills and hoists are available at convenient distributing points on Pacific Coast

For Agencies and Specifications see Page 48

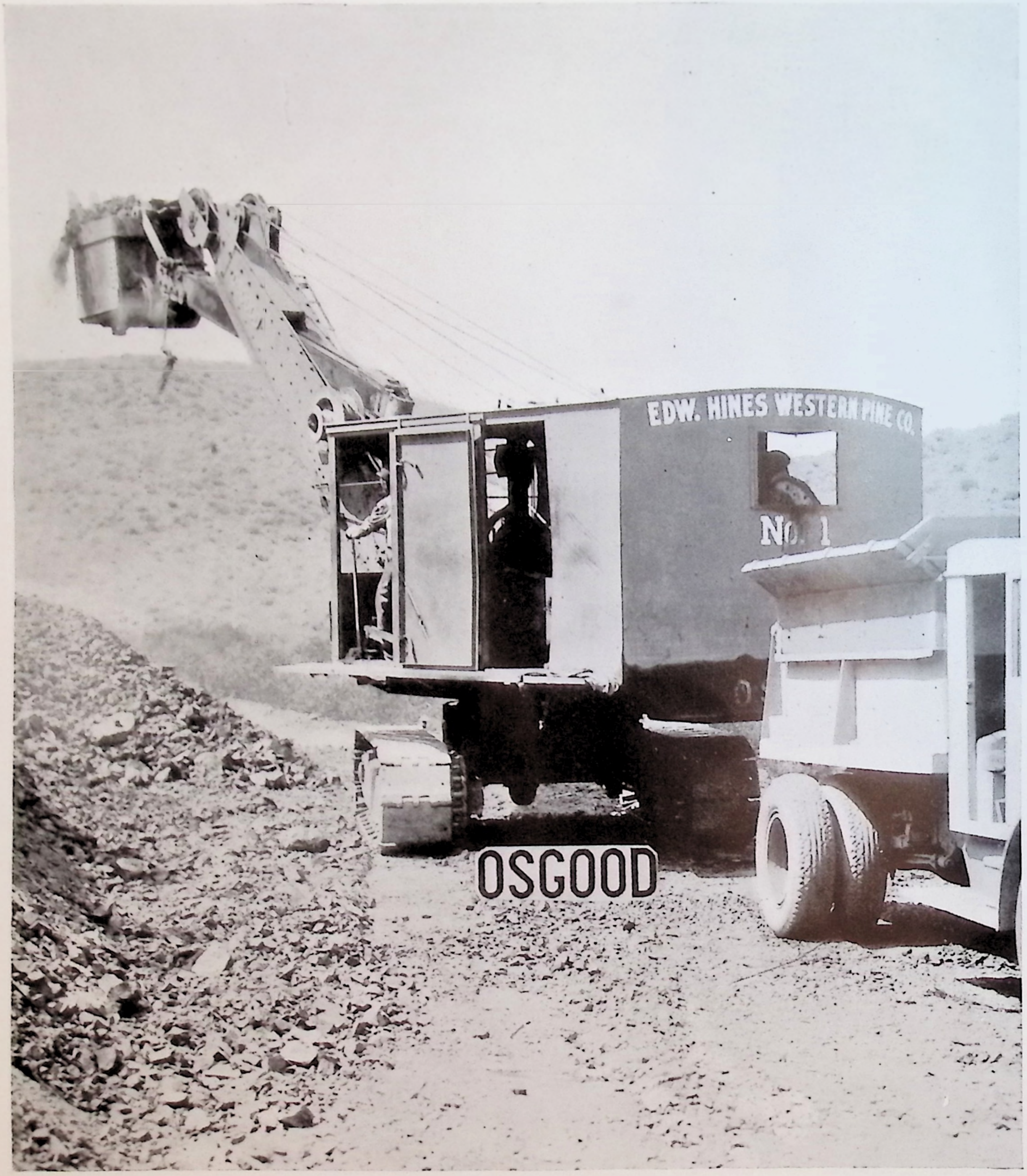
Ohio Crane Logs Are the Cheapest of All



Greenwood Logging Co., of Aberdeen, Wash., is yarding logs with Ohio loggers' special direct to the cars at a cost of 53 to 78 cents per thousand feet, the cheapest logs brought in. In addition to logging, other tasks performed for Ohio owners include: building grade for spurs, laying and picking up steel, pile driving, clamshell work, chunking out, rigging up spar trees, moving camp, wrecking, loading spar tree, cleaning out landings

For Agencies and Specifications see Page 46

Osgood "Conqueror" Building Right of Way



An Osgood "Conqueror" building railroad right of way for the Edward Hines Western Pine Co. near Burns, Ore. This shovel is powered with a Buda-N.A.N. diesel engine. Delegates to the Pacific Logging Congress are cordially invited to see a duplicate of this shovel in operation at the Star Machinery Co. yard at 207 Horton Street, Seattle. Our representative will drive you down and demonstrate exclusive features of Osgood shovels

For Agencies and Specifications see Page 47

Exhibit Specifications and Distributing Agencies

A-C Monarch Logging Tractors

MONARCH "75" has 4-cylinder, valve in head motor, completely enclosed, 90 brake h.p. at 850 r.p.m. Rated load 59 drawbar h.p., maximum load 78 drawbar h.p. Speeds, three forward, one reverse as follows: first 1.55, second 2.64, third 3.56, reverse 2.64. Speeds with special reverse: first 1.15, second 2.64, high 3.33, reverse 1.96.

Drop forged crank shaft, three main bearings, full forced feed oiling, high tension Eisman magneto, Zenith carburetor, selective sliding transmission, multiple disc 15-plate steering clutches. Fuel capacity 60 gals., seat for two, electric lights and starter if ordered. Tracks improved pin drive type. Five truck wheels all outside flanges in each truck frame. Front idler sprocket high carbon steel on Timken roller bearings.

Monarch "50", has 40 drawbar h.p. rated load, 50 drawbar h.p. maximum load. Speeds three forward, one reverse. Four cylinder engine, valve in head, completely enclosed, 60 brake h.p. at 1000 r.p.m. Three main bearings, full forced feed oiling, steering clutches disc type 17 discs, track improved pin type, five double truck wheels in each frame. Front idler on Timken roller bearings. Fuel capacity 31 gals., electric starter and lights if ordered.

Western distributors: Howard-Cooper Corporation, East Third and Hawthorne Ave., Portland, Ore.; Crawford & Taylor, Inc., 71 Spear St., San Francisco, Cal.; The Crook Co., 1220 South Grand Ave., Los Angeles, Cal.; Northwest Equipment Co., Box 112, Great Falls, Mont.

ALLIS-CHALMERS MANUFACTURING CO.
(*Tractor Division*) Milwaukee, Wisconsin

Athey Truss Wheel

FIFTEEN-TON Athey Truss Wheel heavy duty: Width overall of truss wheels, 21⅞", height 36", length 78". Center to center of track wheel 41". Width of track 18". Supporting area per wheel, 6 sq. ft. Track shoes, special high carbon chrome alloy steel, heat-treated. Trip chain bolt and link assemblies, chrome nickel alloy steel, specially heat-treated. Rocker beam and track wheels, electric steel, heat-treated. Track wheel spindles, chrome nickel alloy steel, heat-treated. Bearing cages, medium carbon drop forgings. Bearing thrust washers, steel forgings, carbonized, hardened and ground. Track pins, special alloy steel, carbonized and hardened. Lubrication system, Alemite.

Western representatives: Morrison Tractor & Equipment Co., Ltd., 940 Station St., Vancouver, B. C.; Western Tractor & Equipment Co., 2230 First Ave., Seattle, Wash.; Hofius-Ferris Equipment Co., 728 Mallon Ave., Spokane, Wash.; Loggers & Contractors Machinery Co., 345 E. Madison St., Portland, Ore.; Bunting Tractor Co., Jefferson and Elm Sts., La Grande, Ore.; Miller-Sanford Tractor Co., 824 Pearl St., Eugene, Ore.; Miller-Sanford Tractor Co., Klamath Falls, Ore.; Robinson Tractor Co., 1705 East 12th St., Oakland, Cal.; West Coast Tractor Co., 1175 Howard St., San Francisco, Cal.

ATHEY TRUSS WHEEL CO.
130 N. Wells St., Chicago, Illinois

Atkins Crosscut Saws

THERE is an Atkins "perfect saw for every purpose." Featured in the Atkins exhibit are Silver Steel segment ground crosscut saws Nos. 51 and 52. The wide range of saws offered by Atkins includes wide and narrow band saws, solid and inserted tooth circular saws, veneer saws, shingle and heading saws, machine knives of all kinds for cutting wood, paper, metal, Blue Star and Cinch Weld, high speed steel knives, Silver Steel hack saw blades, hack saw machines, metal cutting band saw machines.

Western branches are maintained at San Francisco, Seattle, Portland, and Vancouver, B. C.

E. C. ATKINS & COMPANY
Indianapolis, Indiana

Atlas-Imperial Industrial Engines

FOUR types of Atlas-Imperial diesel engines are featured in the exhibit. Brief specifications follow:

Four-cylinder, 7x8½, 4 cycle, full diesel mechanical injection, oil tight crankcase, overhead valves and forced lubrication. Power 80 h.p. at sea level for continuous operation at 650 r.p.m. No high pressure air is used to force fuel into cylinders. Starts with inbuilt compressor. Fuel pressure 3800 to 4500 lbs. Length overall 66", height 61", width 38½" net weight 4600 lbs. Cylinders en bloc.

Six cylinder, 7x8½, 4 cycle, fuel diesel injection, valves and crankcase as above. Power 120 h.p. at sea level for continuous operation at 650 r.p.m. Fuel pressure 3800 to 4500 lbs. No high pressure air used to force fuel into cylinders. Compressed air starter, at 225 lbs. Lubrication full pressure system to all bearings. Length overall 90", height 61" width 38½", net weight 6600 lbs. Cylinders en bloc.

Six cylinder, 8x9½, 4 cycle, valves and lubrication as above. Power 150 h.p. at sea level at 600 r.p.m. Air starter. Length overall 112", height 71", width 44", net weight 13,000 lbs. Cylinders en bloc.

Six cylinder, 9x10½, 4 cycle, valves and lubrication as above. Air starter. Power 200 h.p. at sea level at 600 r.p.m. Length overall 112", height 71", width 44", net weight 13,500 lbs.

Branch offices and service stations: Los Angeles, San Diego, San Pedro, Portland, Seattle, Vancouver, B. C.

ATLAS-IMPERIAL DIESEL ENGINE CO.
Oakland, California

Bucyrus-Erie One-Yard Shovel

TYPE D-2 Bucyrus-Erie Diesel Shovel with 1-yard dipper, owned by Wood & Iverson, is shown in the exhibit section. Brief specifications (standard model): Dipper capacity 1 cu. yd., length of boom 23', length of dipper handle 12'6", working weight 67,400 lbs., hoist speed 2-part line 104 f.p.m., bail pull 16,700 lbs., swing speed 4⅜ r.p.m., working speed 3 to 4 dippers per minute, caterpillar type mounting, length overall 10'9½", width overall 9'3", width of treads 24". Power: 4-cylinder, 4-cycle, 6½x8½, mechanical injection, valve in head, Bucyrus-Erie Atlas, speed 550 r.p.m., disc type clutch, fuel storage 60 gals.

West Coast branch office: 989 Folsom St., San Francisco. Representatives: Clyde Equipment Co., Portland and Seattle; National Equipment Co., Salt Lake City; H. N. Steinbarger Co., Denver.

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

Bucyrus-Erie Gas + Air Crane

ONE of the most economical units yet devised for lumber handling is the Bucyrus-Erie Gas+Air Crane, such as employed by the Hammond-Tillamook Lumber Co., at Garibaldi, Ore. The machine is powered with a 4-cylinder 5¾"x8" Waukesha motor, with Ricardo head, speed 750 to 850 r.p.m., rating 80 h.p., twin

Exhibit Specifications and Distributing Agencies

disc clutch, Bosch magneto, Zenith carburetor, gasoline storage 55 gals. Length of boom unless otherwise specified, 40 ft. Safe working load, 15-ft. radius, 25,490 lbs.; 40-ft. radius, 6800 lbs. Hoisting done by direct full power of gas engine. Swinging by independent, throttle-controlled engine, 5¼"x5", double cylinders, direct connected and running on heated compressed air. Compressor displacement 270 cu. ft. of free air per minute, 4-cylinder, 8" bore, 9" stroke, all enclosed and running in oil. Compressed air for swing, 125 lbs. pressure, heated by exhaust from gas engine. Speedy, flexible and simple.

West Coast branch office: 989 Folsom St., San Francisco. Representatives: Clyde Equipment Co., Portland and Seattle; National Equipment Co., Salt Lake City; H. N. Steinbarger Co., Denver.

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

Cletrac Crawler Tractors

THERE is a Cletrac Crawler for any demand of logging service. Sizes available range from the 20, with 20 h.p. at the drawbar up to the massive 100, with 100 h.p. at the drawbar. Popular logging models are the 30 and the 40, brief specifications follow:

Cletrac 30 has a 6-cylinder, en bloc motor, 3¾x5. Forced feed lubrication to crank shaft and splash system to pistons, walls, camshaft, etc. Eisman high tension magneto, Schebler carburetor, oil filter, Borg & Beck clutch, air cleaner. Three speeds forward, one reverse. Low 2.1 miles, intermediate 3.2 miles, high 5 miles, reverse 2.6 miles, all speeds at 1700 r.p.m. Drawbar power 30 h.p. Track shoes 12" wide, 9½" pitch. Length overall 104", width 65", center to center of tracks 44". Turning radius 10 ft.

Model 40 has 6-cylinder motor, cast en bloc, 4½x5. Delco-Remy starting, lighting and ignition unit, Kingston governor, Schebler carburetor, Purolator, Pomona clarifier, Borg & Beck clutch. Three speeds forward, one reverse. Low 2.2 miles, second 3.6 miles, high 5.7 miles, reverse 2.2 miles, all at 1575 r.p.m. Steering by planetary compensating differential. Length 132", width 69", center to center of tracks 48". Turning radius 11 ft.

Pacific Coast agents: A. C. Haag & Co., Portland, Ore., Salem, Ore., Arlington, Ore.; Hill-Mills Company, Seattle and Spokane; Brown & Frazer, Ltd., Vancouver, B. C.; Cleveland Tractor Co., San Francisco; Hartshorn Bros., Nampa, Ida.; Lindeman Power & Equipment Co., Yakima, Wash.; R. D. McKinnon, Baker, Ore.; Hood River Spray Co., Hood River, Ore.; Mack Woolridge, Los Angeles, Cal.

CLEVELAND TRACTOR CO.
Cleveland, Ohio

Climax Locomotives

IN constructing an all steel machine the Climax Manufacturing Co. has placed its product in the forward ranks of modern equipment. The Climax now reduces maintenance to the minimum. This, coupled with power and flexibility, also ease on track and road bed, together with close approach to landings, gives this machine all the desirable qualities.

The service provided by the Climax Locomotive Co. of Seattle, who maintain a complete store for supplying extra parts, also all other necessary accessories needed by a locomotive, including Climax Gear Grease, gives the operator the ideal combination for motive power.

CLIMAX LOCOMOTIVE CO.
623 Western Ave., Seattle, Washington

Clyde Gasoline Locomotive Crane

CLYDE 200 h.p. gasoline logger model locomotive crane, on level track without outriggers has the following capacity: 12-ft. radius, 62,000 lbs.; 25-ft. radius, 23,700 lbs.; 40-ft. radius, 12,300 lbs.; 50-ft. radius, 9600 lbs. With outriggers: 12-ft. radius, 82,500 lbs.; 25-ft. radius, 31,600 lbs.; 40-ft. radius, 16,400 lbs.; 50-ft. radius, 12,800 lbs.

Brief specifications: Weight 150,000 lbs., ballast 15 tons, boom 50 ft., speed 1 to 500 ft. per minute; can ascend 8 per cent grade at 3 miles, 4 per cent grade 5.5 miles on straight track, with no load. With full load can propel around 60-ft. radius curve or over.

Power unit: LeRoi 6-cylinder motor, 6¾x7"; 200 h.p. at 1100 r.p.m. Two starting motors, Leece-Neville system, 12 volt. Stromberg carburetors, built-in air compressor, sectional radiator, 100-gal. gasoline tank.

Distributors: Clyde Equipment Co., 555 Thurman St., Portland, Ore., 3410 First Ave., S., Seattle; Clyde Iron Works Sales Co., Vancouver, B. C. Factory: Clyde Iron Works, Duluth, Minn.

CLYDE EQUIPMENT CO.
Portland, Oregon Seattle, Washington

Clyde Gasoline Yarders

PIONEERS in gasoline yarder construction, Clyde offers a complete range for the varying services demanded in logging. One of the most popular models is the 200 h.p. two-speed, three-drum machine, brief specifications of which follow:

Motor 200 h.p. Le Roi, 6¾x7, operating at 1100 r.p.m.; motor crosswise at rear of bed frame. Two-speed main drum bushed and turns free on the shaft. Drums: Main 1350 ft. 1¼", haulback 3550 ft. ⅝", straw 3400 ft. ⅜". Line pulls: Main in low 60,000 lbs., main in high 30,000 lbs., haulback 10.250 lbs. Line speeds: Main low 200 ft., main high 400 ft., haulback 1025 ft. Weight complete 24,500 lbs.

Distributors: Clyde Equipment Co., 555 Thurman St., Portland, Ore., 3140 First Ave., S., Seattle; Clyde Iron Works Sales Co., Vancouver, B. C. Factory: Clyde Iron Works, Duluth, Minn.

CLYDE EQUIPMENT CO.
Portland, Oregon Seattle, Washington

Colby Cranes

TWO typical views of Colby Cranes are shown on page 22. Colby Crane & Engineering Co. is the oldest distributor and builder of lumber and material handling cranes on the Pacific Coast. They were the first advocates of handling lumber in the package or unit system giving the manufacturer a maximum amount of storage for his dock or ground space.

Colby Cranes incorporate all the latest engineering features, such as swivel trucks for straight or curved track—"cross overs" to work in connection with railroad tracks, direct motor drives, enclosed oil bath reduction units, and the many other features.

Colby Steel & Engineering Co. builds cranes to handle lumber grabs, grab buckets or the typical rope sling method. The range of capacities which this company has already produced in cranes is from 4 to 25-ton. The range of the boom and the height of the boom above the travel rails are adapted to meet each individual requirement.

This company lists among its users some of the most successful operators and manufacturers on the Pacific Coast. It maintains a competent staff of engineers trained in material handling problems and "layout" work.

COLBY STEEL & ENGINEERING CO.
456 Central Bldg., Seattle, Washington

Exhibit Specifications and Distributing Agencies

Gerlinger Lumber Carriers Pacific Spark Consumer

MODEL R. P. F. improved high mechanical lift Gerlinger Carrier is equipped with Continental Red Seal motor, with self starter and generator. New special Brown-Lipe transmission, four speeds forward, four speeds reverse, speed 25 miles. Differential Timken heavy duty. Loading lifting device, simplified mechanical lift, 8″ per second, height 28″; will bind 26-inch unit. Improved forks with large spindle. Heavy tempered steel helical coil springs, one spring on each corner, enclosed, with equalizer and adjustment bolt. Turning radius 15′ 8″, with or without load. Length overall 11′4″. New cam and lever steering gear, four-wheel steer.

Model H. S. F., Continental motor, starter, generator. Brown-Lipe transmission, four speeds either direction, 25 miles. Timken differential. Hydraulic low pressure load lifting device, double acting, lift 4″ per second. Forks heavy reinforced chrome nickel steel, forged and machined. Fork boxes cast nickel steel with large bronze bearings. Top bearing solid bronze. Springs heavy tempered steel helical type, two on each corner. Turning radius 17′ 1″, with or without load. Load supporting shoes, continuous ¾″x6″ angle, length 11′ 4″. New cam lever steering gear, four-wheel steer.

Sparks are literally beaten to death by the Pacific Spark Consumer. Smoke, cinders, sparks and carbon are forced against a series of baffle plates and deflectors, completely pulverizing them before they leave the stack. No screen to renew, no further cost. Long life is assured by the rugged cast iron and steel construction.

Pacific Coast agents: Searles, Inc., 135 Fremont St., San Francisco, Cal.; F. W. Stevens, 326 Pacific Bldg., Portland, Ore.; Dan M. McLauchlan, 508 Pittock Block, Portland, Ore.; Fred J. Marshall, 422 Shelly Bldg., Vancouver, B. C.

Eastern agents: The New York Air Brake Co., 420 Lexington Ave., New York, N. Y. Plant at Watertown, N. J.

DALLAS MACHINE & LOCOMOTIVE WORKS
Dallas, Oregon

Hickok Logging Tools

IT is the privilege of Hickok & Hickok to offer the loggers of the Pacific Coast the largest line of special forged alloy steel logging tools available in the world. The feature of the exhibit is "Bulbeam" (trade mark registered) loading tongs. Among the items manufactured are:

Tongs, rigging clevises, high lead clevises, swivels, universal swiveling rigging plates, loading hooks, butt and choker hooks, wedges, sledges, splitting mauls, undercutters, railroad track tools, special alloy steel heat-treated forgings.

Agencies for these products are: International Steel Co., 2929 First Ave., S., Seattle, Wash., and The Edward J. Nell Company, Manila, P. I.

HICKOK & HICKOK
540 Brannon St., San Francisco, California
114 North Sixteenth St., Portland, Oregon

Lamb-Grays Harbor Blocks

FOUR items of the complete line of Lamb-Grays Harbor logging blocks and carriages are shown in the exhibit section These are:

No. 4109—Ball bearing moving block, sheave 9″x2″.
No. 4920—Ball bearing knock down corner block, 20″x3½″.
No. 4308—Ball bearing trip block, 8″x1¼″.
No. 73-S—Roller bearing skidder carriage with double slack puller.

General offices of the Lamb-Grays Harbor Co., Hoquiam, Wash.; Seattle office, 532 First Ave., S.; Portland office, 308 Pine St.; Canadian agents, National Machinery Co., Vancouver, B. C.; Los Angeles agents, California Equipment Co., Los Angeles.

LAMB-GRAYS HARBOR CO.
Hoquiam, Washington

Fleck Logging Camp Pumps

FOR many years Fleck Pumps have been the recognized standard for logging camp water service. Three Fleck models are shown in the exhibit. The upper view shows Standard No. 3 Fleck Pump, having a capacity of 1300 gals. per hour against heads up to 750 ft. The center illustration is No. 5A Fleck Pump, with a capacity of 2500 gals. per hour against heads up to 1000 ft. The lower view shows No. 6S Fleck electric driven pump, capacity 3000 gals. per hour against 2000-ft. head.

Fleck equipment is sold in California and Nevada by W. H. Worden Co., San Francisco; in Oregon by Fairbanks-Morse & Co., Portland; in British Columbia by Vancouver Equipment Co., Ltd., and in the Philippines by The Edward J. Nell Company, Manila.

FRED LECKENBY
657 East 11th Street, Tacoma, Washington

Lidgerwood Steel Spar Skidders

FOUR sizes are offered in Lidgerwood 100-foot steel spar skidders. The largest carries a 13½x14 skidding engine, 12x12 utility engine, 12x12 loading engine, 3x4 tightening engine. Steam is supplied by an 84x156″ extended firebox boiler. Fuel capacity 2000 gals. of oil, 2000 gals. of water. A 24-wheel steel moving car is required with this unit. Other tower skidders are 12x12 light type, 12x12 heavy type, and 12½x14 heavy type.

Tree rigs in three sizes are also built by Lidgerwood, with skidding engines as follows: 12x12, 12½x14 and 13½x14. The moving cars required are 8, 12, and 16-wheel respectively.

Lidgerwood also builds a 170 h.p. diesel conversion unit, for 11x13 or 12x14 compound yarding engine or equivalent. These units are powered with 4-cylinder 10x13 Atlas-Imperial full diesels, three speeds, air controlled transmission box.

Full diesel yarders with 200 h.p., 6-cylinder Atlas-Imperial engines, and 260 h.p., 6-cylinder engines of the same make are also offered. These engines mount parallel to the frame. Other products of Lidgerwood are steam yarders, pile drivers, structural steel, logging blocks, and steel casting.

Pacific Coast agents: Meany Equipment Co., Portland, Ore.; J. E. Wiley, Seattle, Wash.; R. S. Smilie & Co., San Francisco; Loggers & Contractors Machinery Co., Vancouver, B. C. Export sales from home office at Tacoma, Wash.

LIDGERWOOD PACIFIC COMPANY
Tacoma, Washington

Link-Belt Cranes and Shovels

LINK-BELT shovels, cranes and draglines are built in sizes from ¾-yard to 2-yard capacity. All heavy duty units. Any of these machines can be loaded on a flat car without dismantling. Equipped with diesel or gasoline engine, or electric motor drive.

Link-Belt Locomotive Cranes are built for diesel, gasoline or electric drive. Also steam cranes in standard or special sizes.

Link-Belt crane and shovel division agents: Headquarters during Logging Congress, Rooms 417-19, Olympic Hotel; A. H. Cox & Co., Inc., 1757 First Ave., S., Seattle, Wash.; J. L. Latture

Exhibit Specifications and Distributing Agencies

Equipment Co., 312 E. Madison St., Portland, Ore.; Garfield & Co., Hearst Bldg., San Francisco, Cal.; National Machinery Co., Ltd., Granville Island, Vancouver, B. C.

LINK-BELT COMPANY
Chicago, Illinois

Mack Trucks and Locomotives

FOR twenty-nine years Mack Trucks have been meeting the transportation needs of the lumber and logging industries. The truck illustrated in the exhibit has a 4¼x5, block type, high compression motor, with case-hardened counter-balanced crank shaft. The Mack is "Mack built" throughout. Spring suspension in the dual reduction model is by Mack patented rubber shock insulators, eliminating all metal shackle contact and maintenance. The dual reduction rear end is an exclusive Mack feature, furnishing full floating rear end. Banjo rear axle housing is one-piece drop forging, heat treated.

Mack also announces its entry into the gasoline locomotive field with a full line of gas-electric machines, ranging in size from 11 to 45 tons. These are built in both 4 and 6-cylinder models, with wheel sizes ranging from 33" to 36". Distribution of Mack Locomotives will be through the regular Mack factory branches, with expert engineering service at command of users.

Mack factory branches: Los Angeles, San Francisco, Portland, Seattle, Spokane. Sub-branches at Tacoma, Oakland and Sacramento.

MACK INTERNATIONAL MOTOR TRUCK CO.
25 Broadway, New York, N. Y.

Tru-Lay Rope and Don Lining

TWINS that work together are Tru-Lay "preformed" wire rope and Don brake lining. Tru-Lay ropes are practically free from bending stresses because each wire and strand is drawn to the shape it must assume in actual service. To try Tru-Lay preformed wire rope is to know the meaning of rope economy.

Don brake lining is manufactured from pure asbestos yarn, interwoven with fine-gauge brass wire and treated with a special impregnation giving the metal a solid and cohesive nature thus guaranteeing a high constant co-efficient of friction. Don holds when wet, never slips, will not score drums, engages instantly.

MILL & MINE SUPPLY COMPANY
317 First Avenue, S., Seattle, Washington
York and Guild Streets, Portland, Oregon

Moreland Six-Wheel Trucks

MORELAND Trucks, through the scientific distribution of weight on six wheels, are capable of handling any loads imposed by logging service. Moreland six-wheelers are powered with 97 h.p. Hercules motors, 6 cylinders, 4½"x5¾". Seven forward speeds. Four-wheel brakes, operated by vacuum booster.

The load is balanced on the four rear wheels, with 11" deep center frame where load concentrates. Tandem worm drive is provided on the six-wheel Moreland, affording power on all four rear wheels, enabling the truck to negotiate soft ground and sand.

The motor has a seven-bearing crankshaft, 3" in diameter at the bearing pins. Brake drums are of special graphitic alloy steel, an exclusive Moreland feature. All axle housings and carrying members are made in the Moreland factory, in the largest automatically controlled electric furnaces on the Pacific Coast. Timken bearings and Timken worms and shafts are used in the rear assembly. Moreland is equipped with Autolite starter and electric system.

Moreland factory branches are maintained at Portland, Seattle, Spokane, San Francisco, Los Angeles, Salt Lake, San Diego, Bakersfield, Fresno, and Sacramento, with sub-dealers at all strategic points.

MORELAND MOTOR TRUCK CO.
Burbank, California

Northwest Shovels and Cranes

LOGGERS and lumbermen will find a well rounded line of Northwest Shovels and Cranes for every problem of material moving and earth removal. The 1½-yard shovel, as an example, is the only machine of its size offering the "feather touch" clutch control. It is the only clutch control in which the action is in direct ratio to the pressure of the operator's hand on the lever. Positive traction, a famous exclusive feature, takes the new Northwest Model 6 over footings that other crawlers cannot negotiate. The standard patented cable or Northwest close quarter crowd answers any digging problem, and there is no division of engine power, between crowding and hoisting. Equipped with variable speed motor accelerator, you can "give her the gas" and say "goodbye" to the delays of governed speed. Shovel sizes from ½-yard to 1½-yard.

Northwest Cranes possess the same variety of exclusive features that have won them first place in the lumber yards of the Pacific Coast. For dock work and the rapid handling of lumber they are without equal.

Pacific Coast representatives: Northwest Engineering Co., 23 Main St., San Francisco, Cal.; Pacific Hoist & Derrick Co., 818 First Ave., S., Seattle, Wash.; Zimmerman-Wells-Brown Co., Portland, Ore.; The Brown-Bevis Co., Santa Fe and 49th St., Los Angeles, Cal.; B. C. Equipment Co., Ltd., 551 Howe St., Vancouver, B. C.

NORTHWEST ENGINEERING CO.
28 East Jackson Boulevard, Chicago, Illinois

Ohio Loggers' Special Crane

IT is difficult to enumerate all the uses to which the Ohio Loggers' Special may be put. It is always the most useful machine in camp. Brief specifications of the popular special are: 8-wheel type, eyebeam outriggers, weight (working) 191,000 lbs., speed 1 to 500 ft. per minute, drawbar pull 18,000 lbs., maximum grade 8 per cent at 2 miles per hour, or 4 per cent at 4 miles per hour, maximum curvature 60-ft. radius, traveling clutch shaft 5", traveling clutch 24" diameter, straight and automatic air brakes, unmeshing device for traveling gears, swinging speed 1 to 4 r.p.m., double steel drums in tandem, maximum main line pull 35,000 lbs., maximum main line speed 300 ft. per minute, haulback drum line pull 20,000 lbs., haulback line speed 350 ft. per minute.

The boom is 50 ft. long of the box girder type equipped with heeling device and arranged for hanging load block 10 ft. from tip of boom.

The boiler is 66" diameter by 8 ft., with 262 two-inch tubes 60" long welded in the top head. Pressure 200 lbs. working pressure ASME specifications. Water tank 1280 gals. Fuel tank 500 gals. mounted on roof of cab. Engine piston valve type 10x12, reversing type barrel guides, outside valve motion.

Wheel base 17' 8½", wheels 33" cast steel with tread 1" wider than standard, 500-watt turbo-generator with flood lights, 4 sanders, 350 ft. mainline cable, 350 ft. haulback cable.

Pacific Coast agents: Balzer Machinery Co., Portland, Ore.; H. J. Armstrong Co., Seattle, Wash.; United Commercial Co., San Francisco and Los Angeles, Cal.; Mussens, Ltd., Vancouver, B. C.

THE OHIO LOCOMOTIVE CRANE CO.
Bucyrus, Ohio

Exhibit Specifications and Distributing Agencies

"Wolf" Timber Sawing Machine

NEAR Vineland, N. J., the Hoosier Engineering Co. of Chicago, cut a right of way for a high power transmission line in record time with the "Wolf" saw operating from a portable A.C. 220 volts 60 cycle 3 phase generating outfit, gasoline driven. Machine was No. 2 size, 2 h.p., capacity 24", weight but 95 lbs. Notching, felling and cutting up operations were successfully handled, Mr. G. E. Johnson, construction superintendent, reporting that machine increased progress 25 per cent. Timber handled, oak and pine to 20" diameter; 20" pine was felled in 38 seconds, 18" oak in but 3 minutes.

Over 350 "Wolf" Saws now serve the railroad, mining, marine, general construction and other fields (names on request). It is available in A.C. 110 or 220 volt 60 cycle 3 phase; D.C. 115 or 230 volt; or air driven.

Standard machine has capacity of 24", however machines of increased capacity such as 36" and 48" are available and will be supplied to order.

Pacific Coast agents: P. Sinnock, 808 Skinner Bldg., Seattle, Wash.; Stephen Smith & Co., 12 Steuart St., San Francisco, Cal.; Shaw-Palmer-Bakewell Co., 409 E. Third St., Los Angeles, Cal.

REED-PRENTICE CORPORATION
Worcester, Massachusetts

Roebling "Blue Center" Wire Rope

FOR such exacting purposes as incline work, Roebling "Blue Center" steel wire rope is without a peer. Because of its superior quality, it gives longer life in service and greater working capacity than ropes of inferior material. Replacements are annoying and expensive. The long life of "Blue Center" reduces the number of replacements and lower operating costs. It is particularly adapted to logging work where abrasion is excessive and strains are severe.

Pacific Coast branches: John A. Roebling's Sons Co., of California, 624-646 Folsom St., San Francisco; 216 South Alameda St., Los Angeles; 14th and Marshall Sts., Portland; 900 First Ave., S., Seattle.

JOHN A. ROEBLING'S SONS COMPANY
Trenton, New Jersey

Simonds Crosscut Saws

CROSSCUT SAWS are featured by Simonds Saw & Steel Co. The line is complete with Royal Chinook and Redwood Pattern saws, Peg Tooth saws, and saws especially designed for pine timber. Every pattern in both bucking and falling saws of every standard length. Three styles of one-man saws; two crosscut saw handles with guards, and saw tools and saw files for sharpening saws. Agents are all leading supply and hardware jobbers.

Simonds Saw & Steel Co., Portland, Seattle, San Francisco, Los Angeles, and Simonds Canada Saw Co., Ltd., Vancouver, B. C.

SIMONDS SAW & STEEL CO.
Fitchburg, Massachusetts

Skagit Gasoline Yarder

SPECIFICATIONS of the 300 h.p. Skagit Gasoline Yarder recently delivered to the Monroe Logging Co., will give an idea of the modern trend in yarder design: 6-cylinder Waukesha engine, four speeds on main and haulback drums, full air control, heavy flywheel, Timken roller bearings, air brakes.

Skagit also manufactures a full line of industrial hoisting and transportation equipment. A new gas car Model 6-61 is also recently announced. This machine is powered with 125 h.p. Waukesha motor, six speeds in either direction; one to 30 miles an hour; Westinghouse air brakes, Timken and Hyatt bearings; eight-ton load capacity. Recent purchasers of these cars include Saginaw Timber Co., Coos Bay Lumber Co., Lyman Timber Co., and Long-Bell Lumber Co.

SKAGIT STEEL & IRON WORKS
Sedro-Woolley, Washington

Brute Cranes

BRUTE CRANES are all-electric, revolving boom, traveling hammerhead cranes, especially designed for the handling of lumber at western sawmills. Each Brute Crane is built to suit the special requirements of its specific installation. Each is adapted, through length of boom, height of portal, load lift capacity and motor equipment, to meet the needs of its mill for storage capacity and speed of handling.

Brute Cranes are built to operate on either straight or curved tracks. Brute Cranes are designed, manufactured, sold and installed by one complete organization—the Star Iron & Steel Co., of Tacoma, Wash. This company manufactures and sells also gantry cranes, luffing boom cranes and bridge cranes.

Note.—Brute electric and hand-operated grapples are coming into general use for the handling of lumber packages.

STAR IRON & STEEL CO.
Tacoma, Washington

Osgood "Conqueror" Shovel

OSGOOD "Conqueror" Shovel uses a combination wood and steel armored boom and handle. This type of construction has long been used by Osgood to give the resiliency required to stand up under heavy loads and vibration. Rack and pinions are operated through the famous Osgood application of wire rope crowd, simple and easily controlled. It is so reeved that no power is taken from the hoisting line, yet the crowding action is fully double the line pull in the hoisting line.

Condensed specifications: Weight 71,000 lbs., standard shovel boom 20 or 22 ft.; standard shovel handle 15 ft.; dipper sizes from ⅞-yd. to 1¼-yd.; overall height, boom down, 11' 8"; width of cab 9' 2½", rear end swinging radius 10', overall length of truck 9' 6", overall length of truck 11' 6", width of tread 22", travel speed ¾ mile per hour, minimum turning radius 9', line pull 28,000 lbs. Motors: Buda, LeRoi, Hercules, Waukesha.

Osgood distributors: Star Machinery Co., 1741 First Ave., S., Seattle; Arthur F. King, 1 Montgomery St., San Francisco; Edward R. Bacon Co., 17th and Folsom Sts., San Francisco; Northwestern Equipment Co., American Bank Bldg., Portland; Construction Equipment Co., 1118 Ide Ave., Spokane.

STAR MACHINERY COMPANY
1741 First Ave., South, Seattle, Washington

Steeples Pole Road Log Hauler

STEEPLES Pole Road Log Hauler is powered with a 165 h.p. Climax motor, model R16. Transmission, Steeples make, four speeds in either direction, fully enclosed and running in oil. The wheel base is 18', with a main frame of 12" extra heavy channel iron hot riveted. Two separate sets of brakes each operate on four wheels. These are internal expanding, 20" diameter, 6" wide, with ⅜" lining.

Front trucks are full swivel type, with cast steel wheels. Drive wheels have Timken bearings, rubber center tread with cast steel

Exhibit Specifications and Distributing Agencies

flanges, four-wheel drive. Trailer wheels are cast steel with Timken bearings, four-wheel type.

Capacity is 40 tons normal load with 50 per cent overload guarantee. Bunks 12′ wide of structural steel. Speeds: Low 2½ miles; second 5 miles; third 7½ miles; high 10 miles. Speeds apply in either direction. Other features include electric starter, chrome manganese alloy axles. Tread 8′ center line of poles.

Maximum curve of road 30 degrees. Maximum grades: 10 per cent without chains, 15 per cent with chains. Total weight 49,000 pounds including trailer. Details of other models on request.

STEEPLES ENGINEERING CO.
2910 First Avenue, S., Seattle, Washington

Sullivan Compressors and Hoists

SULLIVAN'S complete line of air compressors and air tools require no introduction to the lumber industry. The scenes shown in the exhibit section are typical of the service being rendered daily by these well-known products. Pictures 2 and 4 show Sullivan compressors and Sullivan rock drill grading roads near Lewis, Wash. Picture No. 1 shows a Sullivan compressor operating a drill to bore bolt and lag holes on a railroad trestle near Lacey, Wash. Picture 3 shows a Sullivan compressor, and rotators drilling ledge for a fire patrol road between Ely and Buyck, Minn. Picture 5 shows a Sullivan compressor being pulled through the timber by means of a Sullivan "Turbinair" hoist mounted with it on a timber sled.

Sullivan air compressors are available in capacities from 68 to 5100 cubic feet per minute.

Western agencies: 120 South Lincoln St., Spokane, Wash.; 633 Howe St., Vancouver, B. C.; Clyde Equipment Co., Portland, Seattle, San Francisco.

SULLIVAN MACHINERY CO.
720 Wrigley Bldg., Chicago, Illinois

Union Wire Rope

UNION Wire Rope is built for service and used for economy. Engineering knowledge plus an extensive study of actual logging conditions combine to make Union rope a favorite in the woods. A catalog containing a wealth of technical and engineering data concerning use of wire rope will be mailed upon request.

Northwest branch: 515 Twenty-second St. North, Portland, Ore., R. L. Adams, manager. Eastern Oregon distributor: Basche-Sage Hardware Co., Baker, Ore. Southwestern Oregon: Oregon Machinery Co., Eugene, Ore.

UNION WIRE ROPE CORPORATION
Factory: Kansas City, Missouri
Head Office: Tulsa, Oklahoma

Washington "Great 6" Gas Skidder

FEATURED in the Washington Iron Works exhibit is the "Great Six" interlocking gas skidder. This machine is equipped with a 300 h.p. engine, with a range of four speeds. Patented air-valve controlled skidding drums give the machine great flexibility. The Washington "Great Six" Skidder operates exceptionally well on long as well as short hauls. Unlike steam its power is always available regardless of the length of haul.

Distributors: Washington Iron Works, Seattle, Wash.; Washington Iron Works, 524 Marshall St., Portland, Ore.; Vancouver Machinery Depot, Ltd., Vancouver, B. C.; W. H. Worden Co., San Francisco, Cal.; The Edward J. Nell Company, Manila, P. I.

WASHINGTON IRON WORKS
Seattle, Washington

Waukesha Engines

MANUFACTURERS of gasoline-powered equipment who are most careful of their reputation use Waukesha engines. In the Waukesha super-duty engine perfect alignment is assured by the deep, rigid "girder" type crankcase. The outer crankcase wall comes half-way up the cylinder barrel. Thus the cylinder's supporting flange is at the base of the water space. This eliminates cylinder rocking, keeps the joint oil-tight and all moving parts in perfect alignment.

There is a Waukesha engine for every logging purpose—yarder, crane, shovel, tractor or light plant. Write for Bulletin No. 710. Offices at New York, Tulsa, Houston, San Francisco.

WAUKESHA MOTOR COMPANY
(*Logging Equipment Division*) Waukesha, Wisconsin

Fairbanks-Morse Turney Loader

FEATURED by the Western Loggers Machinery Co. is the 280 h.p. Fairbanks-Morse Turney three-speed, two-cycle, diesel yarder. The frame of this yarder is built up of 15", 60-lb. steel I-beam, 26′2" long, rigidly connected with heavy I-beam cross members under power plant and drum system. Equipped with Timken bearings throughout.

Band frictions are used on high, intermediate and low gears, all mounted on one shaft, operated by a small air cylinder, affording instantaneous and smooth speed changes.

The main drum has a capacity of 1800′ of 1⅜" line; trip drum 3800′ of ¾" line; straw drum 3800′ of 7/16" line; main line drum 1000′ of ½" line. The weight of engine complete without cable is approximately 78,000 pounds.

WESTERN LOGGERS MACHINERY CO.
Portland, Oregon

Wickwire Spencer Rope

ATTENTION of logging operators is called to the fact that the Wickwire Spencer Steel Co. makes a specialty of Logging Plow rope in all sizes from ¼-inch to 2¼-inches. Complete stocks are carried in all Pacific Coast branches as follows: San Francisco, Los Angeles, Portland and Seattle.

Wickwire Spencer Steel Co., general offices, New York City; Pacific Coast headquarters, 144 Townsend St., San Francisco, Cal.

WICKWIRE-SPENCER STEEL CO.
New York, N. Y.

American Logging Locomotives

AMERICAN Rod Locomotives have long been favorites with logging operators in the Pacific Greater West. The engine employed by the Ewauna Box Co., of Klamath Falls, Ore.; has the following brief specifications: Total weight 168,000 lbs., weight on drivers 120,500 lbs., driving wheels 44" diameter, cylinders 18x24, boiler pressure 190 lbs., maximum tractive power 28,500 lbs., fuel capacity 1000 gals., water 2000 gals.

Zimmerman-Wells-Brown Co., in addition to being agents for the American rod engines for logging service, also represent A. Leschen & Sons Rope Co., manufacturers of "Hercules" (red strand) wire rope; Northwest Engineering Co. with a full line of shovels, cranes and drag lines; Gould Pumps, Inc., Fleck camp pumps; Gardner-Denver steam pumps, and shop equipment.

ZIMMERMAN-WELLS-BROWN CO.
Portland, Oregon